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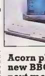
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Vol 4 No 17

Atari and CBM show micros




ATARI and Commodore dominated the home computer market's presence at this Germany's giant consumer electronics show, the Hannover Fair last week.

Both were showing their new products for the first time in Europe – Atari with its 520ST and 130XE, and Commodore with the C128 and C128D

The 520ST will be the first of Atari's ST range to appear offering 512K Ram, Basic, Logo, DR's GEM operating system in Ram and coming bundled with a 3½ inch disc unit for £599 99

Several of the Atari machines announced by Jack Tramiel last September were conspicuous by their absence at Hanover No 32 bit workstation, 65XE, 65XEM 130ST or 260ST were shown

"The 32 bit workstation, the TT, which stands for 32/32, is in development now, and it is possible it will be ready by June," said Sam Tramiel, president of Atari US "We will not start on the 65XE until stocks of the 800XL are all sold, and the music chip for the XEM is not yet ready"

Commodore's C128 is now expected in the UK in August, three months after the Atari machines – priced around £300

Atari claims to have

continued on page 6 ▶





Acorn plans new BBC next month

ACORN now seems likely to anounce its long awaited BBC B Plus successor for the BBC micro in May (see *Popular Computing Weekly*, December 20)

The machine, which will be priced at £499, will be an upgraded BBC B with 64K Ram and 20K shadow Ram.

Packaged in the present BBC B case the new machine will directly replace the present machine – when existing stocks of the BBC B have been sold the older model will be discontinued.

continued on page 5 ▶

Amstrad launches 664

THE FIRST of Amstrad s new CPC 664 micros should be in the shops next week The CPC 664, successor to the CPC 464, was offically launched last week

As was widely expected, the built-in cassette recorder on the 464 has been replaced by a 3 inch disc drive The machine does however, have a cassette port at the back of the machine replacing the disc port on the earlier model

Like its predecessor the CPC 664 will be available in two versions, with either a built-in monochrome or colour monitor The monochrome model will cost £339 00, the colour version £449 00

Software for the CPC 464 should run on the new machine, although a few enhancements have been made to Locomotive's Basic used on both machines The CPC

continued on page 5 ▶

INSIDE 〉 HANOVER FAIR REPORT CONTINUES ON PAGE 6 〉


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View

The two new machines reviewed in this issue – the Amstrad CPC664 and the Atari 130XE – both represent significant developments from existing successful designs

Both are attempts to solve the biggest problem with 8-bit home micros' lack of memory

With the current crop of 48K or 64K machines software houses are having to work harder and harder to achieve ever more marginal increases in program quality

Amstrad and Atari's solutions for adding more memory are very different.

Amstrad's CPC664 still has only 64K Ram but uses a fast built-in floppy disc drive to supplement storage Programs written on the 664 will be able to pull in extra code off disc as required

Compare that with Atari's 130XE which is still cassette-based but offer 128K rather than 64K Ram. Programs on the 130XE load in two blocks with the main core program being able to call on additional graphics displays paged in from the extra 64K

Both machines set new standards of value for money for 8-bit machines

But what would be better for a home micro running mainly entertainment software would be a development of either the Spectrum or the C64 with extra Ram in paged blocks – maybe even as much as 256K. Just think what the top Spectrum of C64 programmers would be able to do given four times as much space to write in.

Come on Sinclair and Commodore, how about it?

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POPULAR Computing WEEKLY

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Presents...

Futures ...

BBC Star Game – over the sticks with Horse of the Year. . .On-screen calculator for the QL. . .Spectrum compiler continues

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Computer Trade Association Magazine of the Year

Virgin to re-issue Rabbit

VIRGIN Games is planning to launch a new budget software label in the Autumn, almost certainly titled Rabbit Software after the new defunct software house whose title Virgin purchased after its crash last year

Said Virgin's Managing Director Nick Alexander, "We felt it was a name that had some integrity and honesty associated with it through its long history – Rabbit was one of the very first software houses."

Launch date for the label is not yet fixed. "We're looking at a possible Autumn timing but we'll see what shape the market is in at the time – the world doesn't need another software house."

Rabbit software products would continue to be in the arcade game vein. "I think the only difference will be that Rabbit label software will have to be at least six or seven out of ten whilst Virgin label games will need to be nine or ten out of ten."

"The real advantage of having a second software label is in distribution, because we can issue a much greater volume of material." Virgin already has some titles suitable for the new range but may also reissue some deleted titles from the Virgin range, "When we got all the flak for putting out poor quality material last year a few titles got left by the way-side which were actually pretty good," Nick continued

Price for titles in the budget range is not yet fixed but will be either £2 50 or £1 99

Amstrad 664 launched

◄ continued from page 1

664's new Basic version 1 1 mark 2 Rom includes several new keywords

The new machine also has an expansion port, to which an additional disc drive can be connected, priced at £159

The launch of the 664 does not, however, mean an immediate price cut for the 464 "I can't see any reason why the price should change" said Amstrad chairman Alan Sugar "Any reduction we may make would be due to a reduction in component prices – not through compromising our market"

Amstrad will not be offering an up-grade facility for 664 owners to get the 664's Mark 2 Rom. Also, new 464's now being produced will not feature the new Rom Sugar blamed software houses which have not followed Amstrad's guidelines for software providors and written 664 incompatible software for the 464 for the decision.

Disc software for the 664 will start at around £11, and Amstrad is also offering its customers an up-grade from cassette to disc service For the price of a blank diskette, Amstrad will copy across user's 464 cassette software

The CPC 664 will initially be sold in Rumbelow, Currys and W H Smiths, and by mail order Amstrad plans to sell 600,000 computers over the next year However, Alan Sugar said he still "expects the 464 to be Amstrad's main seller at Christmas."

● The 664 is reviewed in this issue on page 14.

Acorn's new BBC

◄ continued from page 1

A totally new board has been designed for the Plus and one extra Rom socket has been added to the original five Each socket can now hold 32K and the Basic and operating system chips have been combined on to a single chip

A single DFS will be provided – not the ADFS which had been expected.

All BBC B software will run directly on the BBC B Plus, though new software written to take account of the Plus' additional hardware may not then run on the BBC B

Acorn will offer an upgrade facility from BBC B to B Plus although it is not yet clear how much this will cost.

● Rumours persist that Acorn may be working on a 16-bit BBC C micro using the 16-bit version of the 6502 chip, the W65SC816, for launch before the end of this year

War over Amiga continues

WHILE both Atari and Commodore were exhibiting at Hanover, the legal wrangle between the companies over Amiga Inc continued in the US Amiga, which developed a rival for Atari's ST machine, was bought last year by Commodore

Following last August's suit by Atari against Amiga over graphics chips developed by Amiga for Atari, Atari has brought a new suit, charging that the Amiga micro Commodore plans to launch infringes an Atari patent It is seeking unspecified damages

It is thought Atari is trying to prevent Commodore from bringing out the Amiga computer which Commodore hopes to release this summer in the US. Commodore contends that Amiga cannot be prevented from using its own chips, and so Commodore, as Amiga's parent company, cannot be stopped either

All that technology – and all he wants to know is where's the cassette port!

Bug Byte in liquidation

BUG BYTE has now gone into voluntary liquidation following the announcement last week that the company was insolvent (see *Popular Computing Weekly*, 18 April) A creditors' meeting has been arranged for May 1st.

DK'Tronics up for sale

DK'TRONICS, the software and peripheral company, is up for sale

The news, which follows the launch of its licensed game *Minder* last week, came to light during a court case in Saffron Walden, Suffolk

Standing accused of assault with intent to cause grievous bodily harm was DK'Tronics' managing director David Heelas Having pleaded guilty, he said through his solicitor that he was selling the company and moving to Great Yarmouth

Heelas, who assaulted a man he suspected to be having an affair with his wife, was given a conditional discharge for one year and ordered to pay £25 costs

It is thought one of the other directors of DK'Tronics is planning to buy the company

Spain gets its own QL

SINCLAIR has launched a Spanish version of the QL at La Format 85, the Barcelona computer exhibition held this month

Charles Cotton, Sinclair Research's Overseas Business Manager commented, "A major part of our initial design brief was to make the QL a Spanish micro, a Swedish micro, and an Arabic micro."

The same approach will be used with the American QL which is still set for launch sometime this spring. It will be treated as a foreign language version, with different spelling and American idioms

The keyboard has been altered, to incorporate the Spanish ñ, ç and ü.

The price of the Spanish QL is 125 000 pesetas, approximately £595

● Sinclair has concluded a deal with Macmillan India, an off-shoot of the British book and magazine publishing house, to manufacture the Spectrum under licence in Bangalore, India

Macmillan India plans to produce 75,000 machines in the next year for sale mainly in India priced at 3,000 Rs (around £200)

Hanover Fair report – p6

Hanover Fair details

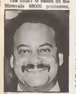
◄ continued from page 1

launched the 520ST (512K) ahead of the smaller memory 130ST (128K) and 260ST (256K) largely because the much-touted GEM operating system used by the Atari ST machines is to be supplied on disc at first.

"It is inevitable there will be some bugs in GEM at the start, and it will be easier to refine from disc," said Atari US software president Sig Hartmann. "As Gem takes up around 110K, it seemed fairer to launch the higher memory machine initially when GEM is going into Ram."

When asked how Atari intended to carry out GEM upgrades into Rom after debugging, Sig Hartmann said, "We haven't looked that far ahead. Right now, we're concentrating on getting the machine out so that people can use it as soon as possible."

The 520ST is based on the Motorola 68000 processor,



Atari US president Sam Tramiel

with 512K Ram and 192B Rom. Both Personal Basic and DR Logo are included in the machine.

Also incorporated is a floppy disc controller, hard disc interface and MIDI interface. (This last feature has given rise to speculation that the 65XEM machine may not appear at all.) Ports comprise standard television socket, video monitor and RGB monitor, two joystick/mouse ports, a Centronics parallel interface and RS232C serial interface.

The GEM operating system allows the use of Macintosh-style icons, windows and drop down menus, controlled by a mouse. However, unlike the Macintosh, the 520ST has a colour screen display.

It is still unclear exactly when the 520ST will be available in the UK. The US launch is set for June, and Atari hopes the machine will follow in the UK a month or two later.

Atari also announced disc drives to go with the 520ST – the SF354 and SF314. Both 3½ inch drives, the 354 has a capacity of 500K and will cost around £150-£200, while the 314 has a 1Mb capacity and will cost around £100 more. Atari also plans a hard disc (10Mb unformatted, 8Mb formatted capacity) at £400.

There were also three monitors to go with the 520ST, the SC1224, SM124 and PS3000. The SC1224 is a medium resolution 12 inch colour monitor, the SM1234 hi-res monochrome and the PS3000 a hi-res colour screen. No prices have yet been settled for the monitors, but they should be between £100-£300.

Printers were also announced for the ST – SMM804 and SDM124. The former is a dot-matrix device printing at 80cps, characters per second in black and white, the latter a daisy-wheel with a speed of 12cps. Complementary printer models for the XE machines, the XMM801 and XDM121 were also launched. The dot-matrix printer is expected to be about £200, the daisy-wheel slightly more expensive.

At the show, Atari's president Jack Tramiel assured: "All the machines and peripherals on show will be ready next month in the US."

The 520ST ran only demonstration software at the Fair, but Atari is hoping for a strong software base at launch. It has its own *Infinity* intergraded word processor and spreadsheet working under GEM, and *The Silent Butler*, an accounting package currently for the XE is set to be converted. Microsoft is planning conversions of its Apple Macintosh software. Jack Tramiel confirmed that software packages will not cost more than £50.

Commodore's stand was a good half-mile slog up the road three halls away, but no less crowded than Atari's.

Both versions of the C128, the basic machine and a version with built-in disc drive, the C128D, were on show.

The C128 has been designed with compatibility as its highest priority. It runs in three modes – C64, C128 and CP/M mode – with two processors, the 8502 and Z80.

The 8502 is a new chip, compatible with the 6502. CP/M runs under the Z80 processor. Screen display is 40 columns only in 64 mode. In C128 and CP/M mode, the user can switch to 80 columns. Graphics resolution is 320 × 200 pixels only in 64 mode, but can be switched to 640 × 200 in the other two. Up to 16 colours can be used in all three.

The C128s floppy disc drive (built into the C128D) is compatible with the 1541 – maximum storage is 410K. The C128 uses Microsoft's Basic version 7 in C128 mode, in C64 mode the start-up screen is indistinguishable from the Commodore 64.

Commodore is still keeping price and availability details for the C128 relatively close to its chest. A German price of the basic C128 was announced, at DM1198.00 – about £318.00. "You can expect the English price to be comparable to that in Germany," said European software manager Gail Wellington.

"The C128 is due to be shown for the first time in Britain at the Commodore Show in June, and we expect it to reach British shops around August."

The up-market Commodore Amiga machine was not displayed or previewed, but Marshall Smith, president of Commodore International, said "The acquisition of Amiga Inc has given Commodore a world-class graphics and sound chip design capability that will ensure we remain on the leading edge of this technology."

The Amiga machine has been shown to all Commodore general managers around the world already, and Gail Wellington is optimistic it could be lauched in the UK at the end of this year. "It's due for a summer release in the US, but I don't think we could physically get it to Britain any earlier than the tail-end of 1985."

On the peripherals side, the 1571 disc drive first shown at January's CES Show, was on display at Hanover. Its German price expected to be that same as the C128 – DM1198.00 (£318.00).

Software already lined up for the C128 includes *Precision Script Plus* and *Superbase* both from Precision Software, Thorn Emi's *Perfect* series (under CP/M mode) and Audiogenic's *Swift*.

Other home machines computer manufacturers among the 5,773 exhibitors at the show took a much lower profile. Amstrad CPC464s dominated the Schneider stand, under whose name the 464 appears in Germany. A stand representative suggested a tentative date of September for the German launch of the CPC664.

There were also plenty of MSX machines – Sanyo, Sony, Toshiba *et al* – if one looked hard enough, but in general they were dwarfed in number by business machines from those companies taking priority on display.

● The Atari 130XE is reviewed in this issue on p11.

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The style console

Jeff Naylor reviews the first of the Atari new wave – the 128K 130XE micro, priced at £169 90

The launch this week of a new Atari computer, the 130 XE, is a significant event – a year ago many people would not have put money on Atari still being in business today

Yet the company is now tipped to take the market by storm – not so much with the XE range, but with the forthcoming 68000-based ST

The reason for the turn-round is ex-boss of Commodore, Jack Tramial, who now runs Atari His reputation is enough to make people start to take seriously the firm that was little more than an embarrassment to its old parent company, Warner

The 130XE is the first of a number of 128K 8-bit computers – Commodore's C128 is also expected soon. Although restyled, the 130XE is firmly based on the existing Atari 800 XL

The 800 XL has always been a sophisticated machine, admired particularly for its sound and graphics capabilities

Its failure to become established as a major force in the UK micro scene has resulted from its price – the 800 (and the 400 before it) has until very recently been grossly over-priced

Now all that's changed. The 130 XE, which uses the same 6502 processor chip as the Commodore 64 is a 128K machine which will sell for only £169 90 Twenty pounds under the Commodore 64 price for 64K more Ram which should shake Commodore up a bit

First impressions

Style is one of the assets that Tramiel has brought to Atari, and the 130XE has a decidedly 'stylish' appearance Compared to the 800 XL, it is slightly deeper and looks less like a slab – the shape reminds me of a cut-down Dragon. The bold diagonal ribbing on the back panel is reflected in the shape of the function keys, which have been moved from a strip the right-hand side of the keyboard to a row above.

They have fairly specialised uses (Reset, Option, Start, etc) rather than being an aid to Basic programming as on MSX machines

The keyboard itself is laid out in an identical manner to the XL, with the addition of graphic symbols to the front edge of some of the keys Return is too small for easy location, and finding delete can be rather a hit or miss affair The shift keys are a sensible size, but I dislike the placing of the caps-lock key on the right. The tactile qualities of the keys are excellent considering the price of the machine Each key is individually sprung, although the switch mechanism appears to be a membrane The travel may be too short for some people's tastes, but compared with a Spectrum + . . . well, there is no comparison.

Connections to the XE are made via the right-hand side and the back, the joystick ports being the only sockets on the side The serial port for interfacing printers, modems and discs conforms to the standard Atari pattern and there are RF and video sockets for feeding TVs and monitors respectively Note that the output to the monitor is composite video only, but this is perfectly adequate considering the resolution, indeed some RGB monitors may not be able to reproduce the full palette of colours The sound output is through the TV monitor speaker The machine is powered from an external power supply via a DIN plug

Also lurking around the back is the standard Atari cartridge slot, no longer easily visible and therefore not declaring "This is a games computer" Further connections to the internals of the XE are possible through an Enhanced Cartridge Interface slot (ECI), which brings, amongst other signals, A13-A15 out into the fresh air In conjunction with the Rom port, it should be possible to connect any sort of additional hardware to the XE Neither of these connectors impressed me greatly with their solidity, but unless you are going to spend all your time plugging and unplugging Roms, they should suffice

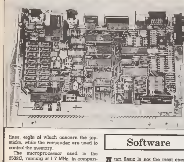
Hardware

Inside the 130XE there are few surprises The computer occupies one board that takes up the entire space (remember that the power supply is separate), and the whole affair is generously screened, which is normal with US computers because their interference regulations are somewhat stricter than ours The circuit board has a well-built appearance, and the number of components is quite low – most of the logic chips have been condensed into a single ULA On the left are a clutch of 16 Ram chips, all 64K by 1-bit devices that provide the 128K bytes (130 712) of memory A custom memory management chip *(Freddy)* resides nearby.

The names of some of the other chips will be familiar to Atari enthusiasts – *Antic* is so powerful a chip that it is considered by some to be a second processor, providing 11 graphic modes and a palette of up to 256 shades of colour

The *Pokey* chip (doesn't it sound like the eighth dwarf?) controls the keyboard and generates the sound, providing four voices with a range of $3\frac{1}{2}$ octaves The XE also boasts a PIA with 16 input/output





lines, eight of which concern the joysticks, while the remainder are used to control the memory

The microprocessor used is the 6502C, running at 1 7 MHz in comparison to Z80 machines this may appear slow, but the 6502 takes less cycles to perform many of its instuctions and the use of direct page addressing also speeds things up Consider the BBC, one of the fastest home machines around, which runs a 6502 at 1MHz. If you bypass the Atari Basic and write in assembler then the 130XE should be a fast machine

The two remaining large ICs are both Roms The operating system occupies 16K, but the Basic has to squeeze into 8K By latter day standards this is somewhat paltry, even though the floating-point functions are handled by the OS Rom.

The hardware layout of the 130 XE can hardly be called new technology Apart from the fact that it is based on an 8-bit CPU, the graphics and sound chips have been with us for many years Even so, when they were designed they were well ahead of their time, for example, the hardware specification of the MSX range leaves the Atari reputation unscathed from a games point of view

With such a vast range of tried and tested software, it must be hoped that there is life in the old format yet. If proof were needed that this is a 'tried and tested' specification, you need only look at the well-made circuit board – not one single chip is fitted via an IC holder

When you've been building a machine for some time you get to know which chips can be relied on, and you can save money by soldering them direct there are obviously few unknown quantities on the XE circuit board

One neat point is the provision of a 'self-test' function This can be sued to check that the keyboard and sound are working correctly and also test the memory

Software

Atari Basic is not the most exciting version of the language around, although this can mostly be blamed on its size There are no glaring omissions many of the reserved words can be abbreviated to one or two letters, the syntax of lines is checked on entry, editing can be achieved on-screen with the aid of the cursor keys

It is unfair to criticise a lack of control structures or graphics commands, particularly when compared with the Commodore 64 The result of a small Basic, though, is that a wealth of Pokes are required for some quite ordinary tasks, making listings hard to understand and programs difficult to debug

And so we come to the main question – how does an 8-bit computer with a 16-bit address bus usefully employ more than 64K of Ram? Manufacturers have tried many ways of using memory bank switching to increase the useful memory storage – from the Timex/Sinclair 2000 'home bank' system through the less torturous sideways Ram and Rom methods available of the BBC B, Enterprise, Amstrad et al In most cases, however, the thing that is rarely achieved is a Basic that can easily exploit the extra memory In this respect the 130XE makes no such attempt. The extra memory has three potencal uses.

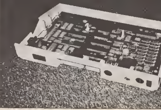
Machine code programs can quickly access another 64K of storage space.

The space can be utilised as extra graphic screen space allowing, for example eight screens to be stored and displayed consecutively.

And finally, disc drive users will find that the 2 5 DOS uses the space to provide a Ram disc

The first point to make clear about the 130XE is that, when first switched on, it provides software environment identical to the 800 XL and for that matter, the 65 XE, ("an 800 XL restyled as the 65 XE, which will probably see the light of day when we've cleared the stocks of the XL") The OS is not just compatible – it is the same All XL and clean 400/800 software will run on the XE Even non-Atari software written for the early machines and using 'illegal' system calls can be made to run on a disc-based 130XE with the aid of a translator program. This, in effect, turns the computer back into an old 400/800

When in this 'compatible' mode, Ram in the main bank responds to memory accesses in the area &4000 to &7FFF. By asserting four extra signals, the second bank of Ram can be addressed in 16K to 32K One signal CPU Bank Enable, when at logic O, causes CPU memory references to be directed to the second bank,

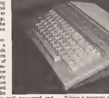


while negating Video Bank Enable will cause the *Antic* chip to fetch screen information from the second bank. Which 16K section actually responds depends on a two-bit signal (BA0 and BA1), selecting one of the four chunks. These extra signals are created by four previously unused outputs of the 6520 PIA.

From the user's point of view there are a number of nice touches to operating a 130XE. European users, with the aid of a single *Poke*, can convert the graphics symbols into an international character set. Another frill is the smooth scroll option that moves the text display on a pixel basis rather than by whole character lines.

Software which makes use of the extra memory will be available soon – a version of *AtariWriter* and *Infinity*, a Lotus 1-2-3 type of program. Perhaps the greatest attraction will be for disc drive owners. When using a 1050 disk drive (which will be repackaged to match the XE styling) and DOS 2.5, a 130 XE behaves as if it were fitted with drive number 8 and you can *Save* and *Load* to the additional Ram with the same ease, and greater speed, as a normal disc drive.

On the subject of discs, Atari is going over to the Sony 3½ inch format. The ST will use them exclusively, and plans are afoot for 250K, 500K, and 1M versions for the XE. With Apple already using 3½ inch drives and IBM rumoured to be taking them up, it seems as if the standard has been set.



The 130XE is accompanied by a manual which shows an up turn in the standards of Atari documentation. Very few manuals satisfy both beginners and experienced users alike, but the 130XE's book is well presented and holds much useful information.

Conclusion

So where does the 130 XE fit into the future of Atari? Priced at present at £170, it represents good value for money.

Well constructed and backed by the software base developed for the older models, it could do well with Atari enthusiasts and newcomers alike.

Taking a negative view, though, it is only a restyled (to match the ST) long-in-the-tooth computer withthe bonus of plenty of spare Ram. The shops are awash with 8-bit home computers with 40-column text screens.

The new micros – affordable disc-based machines with 80-column screens, acres of memory and Macintosh-type operating systems – will be here sooner than we think, and Atari's ST will be in the vanguard.

The 130XE proves that Atari are capable of producing good competitively priced products. Let's hope they keep it up.

Value without vision

***Jeff Naylor** surveys Amstrad's new CPC664 – the first low-cost disc based system*

Amstrad's new computer reflects a perceived demand for an affordable, disc-based machine.

For £339 you get a computer, disc drive and monochrome monitor that is suitable for running many *CP/M* programs, with the added advantage that a sizeable user base has already been built up by its predecessor, the CPC464.

An extra £110 – £449 – will provide you with a version with a colour monitor, although this is not so good for displaying the 80-column text mode. A complete, practical wordprocessing system can now be bought for well under £600.

The CPC664 is almost a 464 with a built-in 3-inch drive fractionally larger, with a change of colour scheme, dished keyboard and bigger cursor keys. Apart from the cosmetic changes, the hardware has the same specification as the 464 except the floppy disc controlling circuitry has been included on the main board and the 664 requires an additional 12 volt supply for the disc, provided from the monitor.

Amstrad has not followed Sinclair's mistake of omitting a cassette interface from their new machine. A Din socket is located on the back which conforms to the standard pattern for audio cassette players, including a remote start facility. Two extra connections are provided – the 12 volt input is a flying lead fitted with a plug, and a second disc drive (£159) can be plugged in. Other connections are the same as for the 464 – expansion (which is not now needed for the disc interface) and printer sockets are cut-board edge connectors. Only one joystick port is provided (a special joystick is required to allow two sticks), as are 5V DC, monitor and stereo sound sockets.

On the software side, there is both good and bad news. The bad news is only bad for 464 owners and software writers who ignored the Amsoft warnings about using the operating system properly. The good news is that, while still retaining a 16K Rom, the Basic has been given a small number of useful enhancements.

A *Fill* command and the ability to draw dotted lines by using a *Mask* command are the most notable new graphic commands. Also there is an additional parameter for *Draw* and its related commands that allows you to control the plotting mode, *Xoring*, *Anding* or *Oring* the new pixels with the old screen contents. *Auto* has been enhanced, making it harder accidentally to overwrite old lines of Basic.

Dec$ has finally seen the light of day. This command, left out of the 464 although documented in the Concise Basic Specification, displays numbers using a pre-defined format template.

Most of the other additions take advantage of routines already contained in the CPC464 operating system. The best example is *Copychr$*, which reads the character from the screen. Used by the copy key routine and available from machine-code on the 464, it is now available to Basic programmers. The most trivial example is *Frame*, which replaces *CALL &BD19* by waiting for the next frame fly-back sync pulse.

One extra command has been added to interrogate disc errors so that they can be dealt with by the comprehensive error handling system (*Derr*), but otherwise the disc commands only have one important difference from the add-on 464 DDI-1 disc unit.



A couple of months ago, when I finally tracked down a drive for my 464, two disappointments lay in store. An assembly fault meant that the sound output was shorted out which forced me to break the warranty in fixing it and question Amstrad's quality control. The other was realising how clumsy the string parameter passing was for the external disc commands. To erase a file, for example, it is necessary to enter *"A$="filename":ERA,@A$"*.

This lack of foresight in the provision of the Resident System Extension routines has been cleared up on the new 664 Rom – *ERA,"filename"* will now work, although the bar prefix and extra comma still distinguish it as an external command. Locomotive Software has also rewritten the garbage collection routine which speeds it up, but may also have something to do with rumours of a large quantity of variable corrupting user-defined functions.

CP/M and Dr Logo are provided in the price of the 664. The CP/M implementa-



tion has the same limitations on the 464 It is supplied with a full set of utility routines and is a 'true' CP/M, unlike XtalDOS on the Einstein. Amstrad are now committed to the 3 inch drive, which they may come to regret While there is by no means anything wrong with the format, the greater potential of the Sony 3½ inch system looks like making that the 'new' standard.

The Hitachi format 3 inch discs are not as expensive as they appear – both sides can be used – but at the moment they are difficult to get hold of If no one else takes them up, the situation may get worse

The bad news that I mentioned earlier is that there are no plans to provide the new Basic and operating system for CPC464 owners, which means a computer that has been available for less than a year already has an air of obsolescence There should be no problem with machine-code or CP/M, just the extra Basic commands These could all be simulated on a 464, but it is a pity that adding a disc drive to the 464 doesn't *quite* create a 664

There is no question that the CPC664 represents tremendous value for money, achieved mainly by bundling items together It is definitely to be regretted however that there is no satisfactory way of up-grading the 464 to a full specification 664 by adding a disc unit.

Compared to other machines currently available of the same price, the 664 wins hands down, and deserves to do well. If you are in no hurry, though, it may be worth waiting for something with a 16-bit processor to arrive

Table of CPC 464/664 software differences.

Command	664	464
AUTO	Line numbers are displayed for editing	'*'warns of overwriting
CLEAR INPUT	Flushes the keyboard buffer	Operating system
COPYCHR$	Reads CHR$ at cursor position	Operating system
CURSOR	Enables or disables cursor display system	Operating system
DEC$	Displays numbers using a format	Not available
DERR	Returns disc error report number	Not available
DRAW DRAWR	Extra ink mode parameter allows	Operating system
MOVE MOVER	control of the overplotting rules	
PLOT PLOTR		
FILL	Fills an arbitrary area with a specified ink	Machine code
FRAME	Waits for video flyback	Operating system
GRAPHICS	Sets colours of graphics	Possible but convoluted
PAPER/PEN		
MASK	Allows dotted line drawing	Machine code
ON BREAK CONT	Completely disables ESC	Machine code
PEN	Additional background mode parameter	Operating system
PRINT USING	Additional currency template	Not available
DIR DRIVE	Take normal string expressions	Strings passed by address
ERA REN		


BOSS
Start a business and learn about balance sheets profit, cash flow, bank loans
ENTREPRENEUR
Take the guesswork out of prediction and plan ahead
FORECASTER
Need help with figures! Work out VAT PAYE, margins interest
NUMBERS AT WORK
Discover the constellations and learn the secrets of your universe
STARWATCHER
Schedule work meet deadlines and save time and money
PROJECT PLANNER
Work out your best move to make the most of your opportunities
DECISION MAKER
Get soft with your micro...
and make the best of it with Brainpower
SEND FOR MORE BRAINPOWER TODAY
Are you really making the best of your micro – are you still using too much of your own brainpower?
We at Collins Soft have some very good news, six simple to use software packages called Brainpower that put you firmly in control and help you reel as your own full potential
Skills that will help you make decisions
Skills that help you plan ahead
Skills which can help your business
Skills to discover the universe and skills which will organise your work
With Collins range of Brainpower software you get a Teaching Program and Book which show you how easy Brainpower is to use on your BBC, Commodore 64 or Spectrum, plus the main Applications Program itself
Discover Brainpower at WH Smith, Boots, Menzies and all good Computer Shops or simply post the coupon for information – today
MICRO
AWARDS
1985
ENTREPRENEUR
PROJECT PLANNER
The manual has a simplicity that is endearing – Commodore Horizons.
STAR WATCHER
FORECASTER
DECISION MAKER
Please send me my Collins Soft Brainpower brochure ☐ (please tick)
Name
Address
Post Code
PCW 4/86
BRAINPOWER
Application through learning
Collins Soft FREEPOST 30 London W1E 7JZ
COLLINS SOFT

Jim lad

Program *Booty* **Micro** Commodore 64 **Price** £2.50 **Supplies** Firebird, Wellington House, Upper St. Martins Lane, London WC2H 9DL

It's time for action on the high seas, mateys, as *Booty* is set on the dreaded pirate ship Black Galleon.

Jim, the cabin boy, has decided that life is boring in the ship's galley, and he sets out to make out a fortune.

You have to guide Jim through the twenty holds of the ship in his search for the pirates' treasure. Progress may be made by the large number of locked doors which can only be opened by picking up the appropriate colour-coded key. Whilst hunting for the many valuable items scattered throughout the ship Jim has to avoid rats, the captain's parrots and the odd ghost pirate. Not only that, but to add to the danger, some of the treasure has been booby-trapped.

The graphics for this big, joystick adventure aren't exactly breathtaking, but they are certainly adequate. As with most adventures, the fun lies in exploring, and it's fairly easy to move round the holds of the Black Galleon. Be careful, though, you might end up in the sea!

The thing that bugs me about Booty is the way that you can be doing well, and then unexpectedly get killed by a parrot or something like that. These nasty little creations appear out of nowhere and polish you off before you've had time to blink.

Very frustrating. Nevertheless, Booty is a neat idea, represents excellent value for money and is very addictive.

Tom Hussey

Foul ref!

Program *Answer Back Sport* **Micro** BBC/Electron **Price** £9.95 **Supplier** Kosmos Software, 1 Pilgrims Close, Harlington, Dunstable, Beds LU5 6LX

Take a striking cover painting by Roz Woodcock featuring a black, male runner... a package calling itself "a sports game"... a blurb about "playing high speed computer games" and you might think of *Daley Thompson's Decathalon*.

In fact it's a quiz program. A very good quiz program on the lines of previous Kosmos offerings. You choose one of 26 quizzes on sporting themes from general knowledge to 'Football for Know Alls'.

Then the program offers you a menu. You select how many of the 30 or so questions in each bunch you want, whether to see them as multiple-choice or yes/no choices, whether to run a random selection of the available problems and whether to fight against the clock or not. You can also make up your own questions, adapt an existing quiz or invent a whole new one.

Your reward for earning points is a chance to play "your favourite sports game" – football or tennis in an implementation as poor as those tv games of 8 or 9 years ago. To make sure you don't miss out there's even a cheat facility to ensure you have a few points.

Sounds in the games and quiz are restricted so that the program can run on Electrons or Beebs.

The quiz program is fine, the games are awful and the packaging misleading.

Dave Watterson

Little gems

Program *Smuggler's Cove* **Micro** CPC464 **Price** £1.99 **Supplier** Camel Micros, Wellpark, Willeys Ave, Exeter EX2 8BE

"Software at sensible prices" is the admirable aim of Camel Micros and I've already been very impressed by their utility programs such as the *Grasp* graph drawer. *Smuggler's Cove*, their first game to my knowledge, is another super effort, showing a rich sense of the unusual and a natural ability to build up atmosphere.

Despite the name, the game is set in the present where you are give the task of overcoming a curse placed on you by a long dead pirate. Unlike the Interceptor games, where the pictures are few in number but superb, each graphic is drawn from scratch rather than loaded in block from Ram. This allows a new design to be shown at every location, but they are only reasonable in quality and the fill routine is not blinding fast. Fortunately, except for the irritating title screen, drawing speed is improved by limiting the graphic to a small window.

You are also allowed to type in commands whilst all this is going on, but it doesn't appear on screen until the picture is completed. The game supports quite sophisticated sentence analysis including the use of 'and'.

As for plots, short location descriptions are enlivened by long, humorous and bizarre comments that appear every so often. The majority of obvious and strange problems I've found to date are solved quite easily by simple 'find object – use object' Logic, but there is a lot more to this colourful and complex game that I haven't worked out. I highly recommend it.

Tony Hendle

Hubble bubble

Program *Merit Chemistry* **Micro** Spectrum 48K **Price** £8.95 **Supplier** J & L Randall, Potters Bar, London

The Merit Chemistry set, with its tubes of colourful chemicals and spirit burner, has been part of childhood for many people.

How many who now create even more noxious nerve gases started by turning litmus red in their bedrooms?

This computer program is perhaps surprisingly targeted at a slightly higher age group though it's probably best seen as an O-level revision aid. While its five main programs flesh out the theory of lab work there's still need for more detailed text book explanations.

Too little thought has gone into how to use the medium of the computer. Page after page of text is better done on paper, especially when it is as eye-straining as the periodic table of *elements*. Throwing in a couple of games (a term I use lightly – neither is exactly enjoyable) doesn't compensate. In fact the simulations are the only things uniquely suited to the micro but they're deadly slow – and isn't a little boat moving between Port Anode and Port Cathode rather juvenile for O-level students?

John Minson



Icons

Program *Shadowfire* **Micro** Commodore 64 **Price** £9 95 **Supplier** Beyond, Durrant House, Herbal Hill, London EC1R 5EJ

Beyond has released in recent months quite a crop of good games for the Commodore 64

Shadowfire is no exception. It is based on a revolutionary concept for a game, as icons (picture symbols) are used for controlling the various characters

Just move the on-screen cursor to the icon representing the required action, press *fire*, and the command is implemented This system is used a lot in business programs but has not, until now, appeared in games.

Shadowfire is an adventure set in the far future It's your job to get a team of highly trained commandos into the enemy skyfortress, Zoff V, to rescue the kidnapped ambassador from the evil clutches of the traitor, General Zoff

With this almost impossible mission, the game starts with our heroes docking on to the side of the mysterious Zoff V

The screen display is very impressive – some of the small pictures are extremely detailed, and the overall view is colourful and well set out. The operating system takes a bit of getting used to, but after a practise session or two, player-control becomes quite easy The actual adventure is extremely complex and will probably take months to solve, as interactive control of the characters obviously needs to be mastered

Certainly not a program for bone-head arcade zappers. This game is bound to start a new craze, and the operating system will probably become even more popular than the traditional adventure format If you can you should certainly try to get a chance to play *Shadowfire*

Tom Hussey

The last bite

Program *Vampire Killer* **Micro** CPC 464 **Price** £1 99 **Supplier** Scorpio Gamesworld, 307-313 Corn Exchange Building, Manchester 4

This is the first true budget software I've seen on the 464, (although you would have a case in saying that £6 is a budget figure given the outrageous prices that are typical with this machine).

Given its cheapness I would once have probably given it three stars but in recent weeks Mastertronic and Firebird have completely rewritten the definition of 'budget games' with such quality releases as *Finders Keepers* on the Spectrum, and its now no longer enough to use the excuse of value for money to cover unexciting games

The game involves making your way up twelve floors of a skyscraper using the lifts to reach the top and kill dracula On the way you must enter rooms, twelve on each floor to collect stakes, crosses, garlic and bullets to enable you to survive the meeting and also clear various other monsters that may block your path Behind each door you may receive a fright rather than a reward and if you get too many shocks you end up fleeing in terror

It could work well as a sort of against the clock, disorientating, random hazards, panic game but it suffers from being far too slow to inspire interest Added to which, the figure moves so awkwardly that it suggests a lack of enthusiasm on the programmer's part I wish they had spent less time on the title screen and more on the game

Tony Kendle

Bird battle

Program *Jouste* **Micro** Commodore 64 **Price** £6 95 **Supplier** IJK Software, Unit 3C Moorfields, Moor Park Avenue, Bispham, Blackpool

Jouste is one of those very simple games that turns out to be particularly addictive

The main idea of the game is to fly an ostrich-type bird in a jousting competition against several adversaries

To kill your opponents you have to be flying higher than them at the point of contact. The screen consists of several platforms or space islands with a dangerous lava pit at the bottom As well as combat with fellow jousters, an unbeatable pterodactyl has to be avoided as it flies menacingly above The graphics are quite good, with nicely drawn sprites and a good colour scheme A few sound effects wouldn't have been out of place, though.

Tom Hussey

003

Program *Spy Hunter* **Micro** Spectrum 48K **Price** £7.95 **Supplier** US Gold, Unit 10, Parkway Industrial Centre, Heneage Street Birmingham

"The Official Home Version of Bally Midway's 1st Arcade Hit" proclaims the back of the *Spy Hunter* box, while its cover explodes into a machine gun-firing sports car, helicopter, crashing car, speed boat.



The game itself is, of course, a second generation shoot 'em up, vintage 1983, very much an arcade clone with its overhead view of flat graphics, a vertically scrolling road and some explosive sound effects. The idea is to do unto the enemy, in a variety of homicidal vehicles, before they do unto you The conversion to Spectrum is also less than polished – the only way to reselect skill level seems to be by re-loading

There are better mass destruction games

John Minson

Stock Market

Enjoy the thrills of the stock market in this trading game for the Amstrad CPC 464 by Paul Large

The object of the game is to make money by trading in shares on a small stock market You start off with £1000 and have 30 days in which to make the largest possible profit

Each day you have a choice as to what you want to do Your options are. to buy shares, sell shares, take out a loan, sell up, pay off a loan or visit your accountant In order to make a large profit, you must buy up shares when they are low, and sell them when they have risen to a high enough price

Bank loans are useful when you see a real bargain but you have to pay interest for every day you have the money.

NB in Line 260 replace £ by #.

```
10 REM
20 REM              STOCK  MARKET
30 REM              BY PAUL LARGE
40 REM
50 ON BREAK GOSUB 1670
60 INK 3,3:PAPER 3:BORDER 3:INK 1,26:
INK 2,16:PEN 1
70 HIB=0:HIN$="AMSTRAD": GOSUB 1500
80 DIM P(10),O(10),C(10)
90 MODE 0:PRINT "BEST SCORE:":LOCATE
1,8:PRINT"£";HIB:LOCATE 1,14:PRINT"BY
 ";HIN$:FOR A=1 TO 3000:NEXT:MODE 1
100 FOR A=1 TO 10:O(A)=0:P(A)=0:C(A)=
0:NEXT
110 D=0:MO=1000:A$=(CHR$(150)+(STRING
$(38,CHR$(131)))+CHR$(156)):B$=(CHR$(
141)+(STRING$(38,CHR$(140)))+CHR$(142
)):IR=5:LD=0:L=0
120 IF L=0 THEN LD=0
130 FOR A=1 TO 10:P(A)=INT(RND*49*A)+
9:NEXT
140 D=D+1:IF D>30 THEN CLS:PRINT "YOU
R 30 DAYS HAVE NOW RUN OUT AND YOU
ARE BEING SENT HOME.":FOR A=1 TO 4000
:NEXT:GOTO 930
150 IR=IR+(RND)-(RND):IF (IR)>10 THEN
 IR=10
160 IF (IR<2.5) THEN IR=2.5
170 I$=STR$(IR):I$=MID$(I$,1,4):IR=VA
L(I$)
180 INK 3,3:PAPER 3:BORDER 3:INK 1,26
:INK 2,16:PEN 1
190 IF (L>0) THEN L=L+(IL/100)*IR):LD
=LD+1:IF LD=11 THEN 830
200 L=INT(L)
210 FOR A=1 TO 10:C(A)=INT((RND*10*A)
-(RND*10*A)):IF P(A)+C(A)<15 THEN C(A
)=-C(A)
220 P(A)=P(A)+C(A)
230 NEXT
240 CLS:PRINT A$;CHR$(133);" CITY SHA
RE PRICE INDEX - DAY ";D;TAB (40);CHR
$(138);B$;CHR$(133);TAB(9);CHR$(149);
TAB(17);CHR$(149);TAB(28);CHR$(149);T
AB(40);CHR$(138);
250 PRINT CHR$(133);" SHARE ";CHR$(14
9);" PRICE ";CHR$(149);"  CHANGE  ";C
HR$(149);"  YOU OWN  ";CHR$(138);
260 PRINT CHR$(133);TAB(9);CHR$(149);
TAB(17);CHR$(149);TAB(28);CHR$(149);T
AB(40);CHR$(138);
270 FOR A=1 TO 10:C$=" UP   ":IF C(A)
<0 THEN C$=" DOWN ":C(A)=ABS(C(A))
280 PRINT CHR$(133);:PRINT USING "££
££";A;:PRINT TAB(9);CHR$(149);:PRINT
USING "££££";P(A);:PRINT TAB(17);CHR
$(149);C$;:PRINT USING"£££";C(A);:PRI
NT TAB(28);CHR$(149);"   ";:PRINT USI
NG "££££";O(A);:PRINT TAB(40);CHR$(1
38);
290 NEXT
300 PRINT CHR$(133);TAB(9);CHR$(149);
TAB(17);CHR$(149);TAB(28);CHR$(149);T
AB(40);CHR$(138);STRING$(40,CHR$(131)
)
310 PRINT" 1: BUY  SHARES     4: GO H
OME         2: SELL SHARES     5: P
AY OFF LOAN     3: HAVE A LOAN      6
: FINANCIAL UPDATE"
320 PEN 2:PRINT" YOU HAVE £ ";MO;TAB(
21);:PEN 1
330 IF L>0 THEN PRINT "BANK LOAN ";IR
;"%"
340 SOUND 1,40,20,15
350 W$=INKEY$:IF W$="" THEN 350
360 IF W$>"6" OR W$<"1" THEN GOTO 350
370 ON VAL(W$) GOTO 390,530,580,930,9
50,1120
380 GOTO 140
390 REM
400 GOSUB 440
410 IF (MO<(P(SH)*N)) OR ((O(SH)+N)>1
0000) THEN LOCATE 1,25:PRINT "YOU CAN
'T BUY THAT MANY ":SOUND 1,30,20,5:F
OR A=1 TO 1000:NEXT:LOCATE 1,25:PRINT
 STRING$(40," "):GOTO 140
420 MO=MO-P(SH)*N:O(SH)=O(SH)+N
430 GOTO 380
440 REM
450 LOCATE 1,22:PRINT "WHICH SHARE (1
-10)                ":INPUT SH
460 IF (SH<1) OR (SH>10) OR (SH<>INT(
SH)) THEN GOTO 440
470 LOCATE 1,24
480 MXX=INT(MO/P(SH)):IF MXX>10000 TH
EN MXX=10000
490 LET NW=VAL(W$):IF NW=1 THEN PRI
NT "HOW MANY SHARES  ( MAX.";MXX;")";
:INPUT N
500 IF NW=2 THEN PRINT "HOW MANY SHA
RES  ( MAX.";O(SH);")";:INPUT N
510 N=INT(N):IF N<0 THEN 440
520 RETURN
530 REM
540 GOSUB 440
550 IF N>O(SH) THEN LOCATE 1,25: PRIN
T "YOU CAN'T SELL THAT MANY. ":FOR A=
1 TO 1000:NEXT:LOCATE 1,25:PRINT STRI
NG$(40," "):GOTO 140
560 O(SH)=O(SH)-N:MO=MO+P(SH)*N
570 GOTO 380
580 REM
590 INK 5,26:BORDER 26
600 INK 6,11
610 MODE 1:PAPER 5:CLS:PAPER 6
620 INK 7,3:PEN 7
630 PRINT CHR$(135); STRING$(38,CHR$(
131));CHR$(130);
640 PRINT CHR$(133);" UNITED CITY BAN
K - LOAN APPLICATION. ";CHR$(138);
650 PRINT CHR$(141); STRING$(38,CHR$(
140));CHR$(142);
660 PAPER 5
670 IF L=0 THEN GOTO 720
680 PEN 4
690 LOCATE 1,5: PRINT"I'M SORRY, BUT
THERE IS ALREADY A LOAN  OF £";L;" WH
ICH YOU HAVE NOT REPAID."
700 LOCATE 1,9:PRINT"YOU TOOK OUT THI
S LOAN";LD;"DAYS AGO."
710 GOTO 1480
720 REM
730 LN=MO*5:LN=LN+INT(RND(1000)):IF L
N>10000 THEN LN=10000
740 LN=LN+(RND*(LN/10))-(RND*(LN/10))
:LN=INT(LN)
750 LOCATE 1,5:PRINT"YOU MAY HAVE A L
OAN OF UP TO: £";LN
760 PRINT:PRINT"A SMALL AMOUNT OF INT
EREST IS CHARGED BYTHE BANK EACH DAY.
THE PRESENT INTEREST RATE IS";IR;"%
"
770 PRINT"THIS LOAN MUST BE REPAID WI
THIN 10 DAYS.          ";STRING$(4,CH
R$(208))
780 LOCATE 1,12:PRINT"HOW MUCH WOULD
YOU LIKE TO BORROW ?"
790 LOCATE 1,13:PRINT"        ":LOCATE
 1,13:INPUT L:IF (L>LN) OR (L<0) THEN
 LOCATE 1,20:PRINT "YOU CANNOT HAVE T
HAT MUCH!  ":FOR ZL=1 TO 1000:NEXT ZL
:LOCATE 1,20:PRINT STRING$(40," "):GO
TO  790
800 L=INT(L):MO=MO+L
810 PAPER 3:CLS
820 GOTO 140
830 REM ££ OUT OF TIME ££
840 INK 5,9:BORDER 9:PAPER 5:CLS
850 INK 6,21:PEN 6
860 LOCATE 1,3:PRINT" THE TEN DAYS WH
ICH YOU WERE GIVEN TO    PAY OFF YOUR
 BANK LOAN OF £";LN;:PRINT" HAS NOW R
UN OUT.":LOCATE 1,8:PRINT" THE BANK H
AS TAKEN ALL YOUR MONEY AND   SHARES
TO PAY THIS AMOUNT OFF."
870 SOUND 1,100,50,15
880 LOCATE 1,22:PRINT "PRESS ANY KEY"
890 L=0:MO=0:FOR A=1 TO 10:O(A)=0:NEX
T
900 AA$=INKEY$:IF AA$="" THEN 900
910 GOTO 1300
920 STOP
930 REM
940 GOTO 1300
950 REM
960 BORDER 3
970 MODE 1:PAPER 3:CLS:PAPER 0
980 PEN 1
990 PRINT CHR$(135); STRING$(38,CHR$(
131));CHR$(130);
1000 PRINT CHR$(133);" UNITED CITY BA
NK - LOAN REPAYMENTS.  ";CHR$(138);
1010 PRINT CHR$(141); STRING$(38,CHR$
(140));CHR$(142);
1020 PAPER 3
1030 LOCATE 1,5:IF L=0 THEN PRINT "YO
U HAVE NOT EVEN TAKEN OUT A LOAN FROM
 THIS BANK.":SOUND 1,200,20,15:GOTO 1
460
1040 PRINT"YOU STILL HAVE A TOTAL OF
£";L;"OF":PRINT"YOUR LOAN TO REPAY.TH
IS LOAN WAS TAKEN  OUT";LD;"DAYS AGO.
"
1050 LOCATE 1,15:PRINT"YOU HAVE £";MO
:LOCATE 1,17:PRINT"HOW MUCH DO YOU WA
NT TO REPAY ?":LOCATE 1,20:INPUT LA
1060 LA=INT(LA)
1070 IF (LA)L) OR (LA<0) OR (LA>MO) T
HEN CLS:GOTO 950
1080 IF LA=L THEN L=0:LD=0:MO=MO-LA:G
OTO 380
1090 L=L-LA:MO=MO-LA:LOCATE 1,22:PRIN
T"YOU STILL HAVE £";L;:PRINT"OF YOUR L
OAN TO REPAY."
1100 FOR ZL=1 TO 1000:NEXT
1110 GOTO 380
1120 REM
```

```
1130 INK 5,26:BORDER 26
1140 INK 6,11
1150 MODE 1:PAPER 5:CLS:PAPER 6
1160 INK 7,3:PEN 7
1170 PRINT A$;CHR$(133);"ACCOUNTANTS FINANCIAL REPORT - DAY";D;TAB(40);CHR$(130);B$
1180 PAPER 5
1190 LOCATE 1,7:PRINT"YOU HAVE...........£";MO
1200 LOCATE 1,9:PRINT"BANK LOANS.........£";L
1210 LOCATE 1,11:PRINT"DAYS SINCE LOAN......";LD
1220 DD=0:VV=0:FOR ZL=1 TO 10:DD=DD+D(ZL):VV=VV+((P(ZL))*D(ZL)):NEXT
1230 LOCATE 1,15:PRINT"NUMBER OF SHARES.....";DD
1240 LOCATE 1,17:PRINT"VALUE OF SHARES....£";VV
1250 LOCATE 1,21:PRINT"TOTAL ";
1260 PR=MO-L+VV-1000:IF PR>=0 THEN PRINT "PROFIT";
1270 IF PR<0 THEN PRINT " LOSS ";
1280 PRINT " OF.....£";ABS(PR)
1290 GOTO 1460
1300 REM
1310 CLS:LOCATE 1,13:PRINT"
     GAME OVER"
1320 FOR A=1 TO 2000:NEXT
1330 REM
1340 LET PZZ=MO-1000-L
1350 FOR A=1 TO 10:PZZ=PZZ+(D(A)*P(A)):NEXT:PZZ=INT(PZZ)
1360 INK 3,3:PAPER 3:BORDER 3:INK 1,26:INK 2,16:PEN 1:CLS
1370 PRINT"I HAVE COUNTED UP YOUR MONEY, PAID OFF  ALL YOUR DEBTS AND SOLD OFF YOUR SHARES. ":PRINT"YOU HAVE MADE A ";
1380 PZZ$="PROFIT":IF PZZ<0 THEN PZZ$="LOSS"
1390 PRINT PZZ$;" OF :-":PRINT:PRINT TAB(15);"£";ABS(PZZ)
1400 FOR A=1 TO 2000:NEXT
1410 IF PZZ>HZ0 THEN GOSUB 1630
1420 LOCATE 1,22:INPUT"DO YOU WANT ANOTHER GO (Y/N) ";YY$
1430 IF YY$="Y" OR YY$="y" THEN GOTO 90
1440 MODE 0:CLS:PRINT"STOCK MARKET"
1450 GOTO 1450
1460 LOCATE 1,24:PRINT "<   PRESS  SPACE  BAR  TO  CONTINUE.   >"
1470 G$=INKEY$:IF G$="" THEN 1470
1480 PAPER 3:BORDER 3:CLS
1490 GOTO 140
1500 REM
1510 MODE 0:LOCATE 1,10:PRINT"    STOCK MARKET    "
1520 SOUND 1,200,20,15
1530 LOCATE 1,22:PRINT"PRESS ANY KEY.......":
1540 AA$=INKEY$:IF AA$="" THEN 1540
1550 MODE 1:CLS:PRINT"STOCK MARKET
                BY PAUL LARGE."
1560 PRINT:PRINT:PRINT:PRINT"IN THIS GAME YOU MUST BUY & SELL SHARES ON A SMALL STOCK MARKET. YOU START OFF  WITH £ 1000 ,BUT WITH SKILL THIS CAN BE INCREASED MANY TIMES. THE CITY BANK WILLBE ABLE TO OFFER YOU LOANS, BUT YOU MUSTENSURE THAT THESE ARE REPA
1570 PRINT"DAYS OR YOU WILL BE IN TROUBLE.          AN ACCOUNTANTS REPORT IS AVAILABLE TO   GIVE YOU AN IDEA OF HOW YOU ARE DOING,  AND THE MAXIMUM TERM OF TRADING IS 30   DAYS, AFTER WHICH YOU WILL BE SENT HOME."
1580 PRINT"YOU MAY GO HOME AT ANY TIME, AND IF YOU DO SO, YOUR TOTAL PROFIT OR LOSS WILL RECALCULATED"
1590 PRINT:PRINT"THE BEST OF LUCK..."
1600 LOCATE 1,24:PRINT"PRESS ANY KEY TO PLAY THE GAME.........."
1610 AA$=INKEY$:IF AA$="" THEN 1610
1620 RETURN
1630 CLS:PRINT "PROFIT OF £";PZZ
1640 LOCATE 1,10:PRINT"WELL DONE...";:PRINT:PRINT:PRINT:PRINT"YOU HAVE BEATEN THE HIGHEST SCORE.ENTER YOUR NAME (MAX. 10 LETTERS)."
1650 HZ0=PZZ
1660 LOCATE 1,20:INPUT HZ0$:HZ0$=HZ0$+"          ":HZ0$=MID$(HZ0$,1,10):CLS:RETURN
1670 INK 3,3:PAPER 3:BORDER 3:INK 1,26:INK 2,16:PEN 1:MODE 1:CLS:PRINT"STOCK MARKET"
```

Getting into top gear

Speed up your Basic programs using this Compiler for 48K Spectrum by ***A Mehmood***

One main draw-back of programs written in Basic is the speed they run at. You must have noticed that even some of the simplest of programs may be slow and sluggish. The only way to really overcome the problem of speed is to convert the programs into machine code. This may not be such a hard task for someone who is familiar with assembler but for someone who has no or very little such knowledge it becomes an almost impossible task. This is where many people can benefit by using a compiler.

This compiler interprets many (but not all) of the commands, functions and statements used in Basic to their machine code equivalents. When this code is run, you will find your program runs much faster than its Basic equivalent.

Commands, Functions and Statements supported are as follows

At	Attr
Beep	Border
Chr$	Cls
Code	Draw
Flash	Goto
Gosub	If
In	Ink
Inkey$	Int
Inverse	Let
Out	Over
Pause	Peek
Plot	Point
Poke	Print
Rem	Return
Rnd	Stop
Tab	Then
Usr	Paper
Bright	

The following symbols (Punctuation/Arithmetic) are also supported

,	
;	(
)	/
*	+
-	=
<	>
<=	>=
<>	'

All the above Commands, Functions, Statements and symbols can be used in exactly the same way as they are in standard Sinclair Basic, with the following exceptions

Inkeys – To read a key the *Inkey$* command must take up the following format *If Code Inkey$ = x Then* ... *x* being the character code of the key to be read. This can be found by looking in Chapter 26 appendix A of the Spectrum manual. Eg, five has the code of 53, nine has the code to 57, etc.

Numbers – All numbers used at any time in the program should be in the range of 0-65535. Any negative number will hold the value of *– 65536-x*, *x* being the negative number. It should also be noted that only integers (whole numbers) are allowed or stored after calculation.

Beep – The *Beep* command has the format as in standard Sinclair Basic (eg, *Beep x,y*) except in that *x* holds the duration of the sound in micro seconds (approx) rather than holding the duration in seconds. Rather than *y* holding the value of the note to be played, *y* holds the result of the following equation: frequency * time (in seconds). Using this method more variety of sounds can be produced.

Next week, the remainder of the Basic Listing and how to compile your own programs.

```
192 GO SUB wB: LET r$=CHR$ PEEK p: IF R$<"0" OR R$>"9" THEN  LET x$="Only numbe
rs allowed for  GO TO          GO SUB and USR ": GO TO wf
195 LET P=P+VAL "1": IF PEEK P<>VAL "14" THEN  GO TO VAL "195"
196 LET p=p+w2: LET a=PEEK p: IF e$="" THEN  RETURN
198 GO SUB wb: LET b$=b$+c$: LET a=PEEK (p+w): GO SUB wb: LET b$=b$+c$: LET p=p
+w1: RETURN
201 IF P>=FN A(VAL "23627")-VAL "1" THEN  GO SUB VAL "630": PRINT TAB VAL "12";
"COMPILED.": GO TO VAL "915"
202 IF R$=k$ THEN  LET s=w: LET P=P+w: LET GO=P: GO SUB VAL "11": LET I$=l$+CHR
$ PEEK P+CHR$ PEEK (P+w)+C$: LET LINE=PEEK P*wd+PEEK (p+w): LET P=P+VAL "4"
210 IF R$=":" THEN  LET s=s+w: LET P=P+w
215 GO SUB wB
220 POKE 23692,-1: LET R$=CHR$ PEEK P: LET q$=r$: PRINT r$;TAB B;"IN ";line: IF
R$=CHR$ VAL "241" THEN  GO TO VAL "600"
221 IF R$=CHR$ VAL "250" THEN  GO TO VAL "620"
222 IF R$=CHR$ VAL "245" THEN  GO TO VAL "700"
223 IF R$=CHR$ VAL "246" THEN  GO TO VAL "760"
224 IF R$=CHR$ VAL "244" OR R$=CHR$ VAL "223" THEN  GO TO VAL "765"
225 IF R$>=CHR$ VAL "217" AND R$<=CHR$ VAL "222" THEN  GO SUB VAL "183": GO TO
we
227 IF R$=CHR$ VAL "215" OR R$=CHR$ VAL "252" THEN  GO TO VAL "770"
228 IF R$=CHR$ VAL "251" THEN  LET A$=A$+"3A915C328F5CCDAFOD": GO TO VAL "300"
229 IF R$=CHR$ VAL "236" OR R$=CHR$ VAL "237" THEN  LET A$=A$+("CD" AND R$=CHR$
VAL "237")+("C3" AND R$=CHR$ VAL "236"): LET C$="": GO TO VAL "645"
230 IF R$=CHR$ VAL "231" THEN  GO TO VAL "772"
231 IF R$=CHR$ VAL "226" THEN  LET A$=A$+"CF08": GO TO VAL "300"
232 IF R$=CHR$ VAL "234" THEN  GO TO VAL "280"
235 IF R$=CHR$ VAL "242" THEN  GO TO VAL "833"
245 IF r$=CHR$ VAL "254" THEN  LET a$=a$+"C9": GO TO VAL "300"
270 LET x$=r$+" INVALID Command": GO TO wf
280 LET QQ=QQ+w2: LET A=PEEK QQ*wd+PEEK (GO-w): LET P=GQ+A
282 LET R$=K$: GO TO we
299 LET x$="COMMAND"+R$+" INVALID": GO TO wf
```

Merged amendment

Use Mail Merge with Quill version 2.00 with this amendment by **Ron McAllister**

Following the introduction of QL Version 2 00, certain amendments to the *Mail Merge* program published recently will be necessary This is due to a change in the format of 'Document files' produced by the *Print* command of Quill 2 00, the source document used by Mail Merge

Firstly, ensure all line numbers of the original *Mail Merge* program are exactly as printed in the original listing then type in the amendment program carefully (using the line numbers given)

Save the program, eg, *Save mdv1-amend*, load the original *Mail Merge* program, eg, *Load mdv1-mail-merge*, and type in the line *-Merge mdv1-amend*. The original program will now be compatible with Quill 2 00

Save the new altered program with a different name *before* running it, eg, *Save mdv1-mail-mrg2*

We also print, this week the figures omitted from the original *Mail Merge* article

Here are a few other tips using Quill 2 00 The new *install-bas* do not include a seperate category for *end of page code* as did the early version. This can be overcome by putting the *ESC,12* code (FORM FEED for Epson compatible printers) in the *Postamble Code* category If this code is not present, single page documents will not be printed to the end of the page

The description of how to use the save facility in *install-bas* is not very clear in the documentation Separate printer drivers can be constructed and saved to microdrive to enable easy installation in the Psion programs I have found it useful to have three separate drivers for Quill even though I only use one Printer!

1 *RX80-PICA* This is set up as the basic default driver for general speed work, where the appearance of the print is not that important

2 *RX80-PICA D/S* This is set up to include the *<Esc)*, "*G* code in the *Preamble Code* category which results in all text being printed in the double strike mode By using this driver, the print quality is considerably increased by speed is reduced Both drivers 1 & 2 are set up with column width of 80 characters

3 *RX80-ELITE* By creating another driver the Elite character mode can be selected This is instigated by including the *<ESC>,"M* code in the *Preamble Code* category By using this type face the characters per line parameter can be increased up to 96 columns, very useful when a large amount of text is to be printed on standard A4 paper The print quality is good and bears comparison with an electric typewriter

All these drivers can be constructed and renamed within *install-bas* and then saved using function key F4 When a different printer driver is required to be installed simply run *install-bas* and you will have a permanent selection from which to choose.

Copies of the program, together with Quill instruction doc, Archive procedures, example documents and an example database are available from the author at 1 Brookside Close, Prescot, Merseyside L35 5DA, costing £6 95 inc P&P

AMENDMENT PROGRAM

```
145  CLEAR
160  file
370  :
465  LET m=m-1
505  LET mar=mar-1
800  PRINT#(channel);FILL#(" ",mar);
 "Dear ";rec#;
1660 PRINT#(channel),rec#
1831 rec$=""
1832 REPeat line_loop
1833 IF EOF(#5) THEN EXIT line_loop
1834 temp$=INKEY$(#5,-1)
1835 rec$=rec$&temp#
1836 IF CODE(temp#)=13 THEN EXIT
line_loop
1840 END REPeat line_loop
1880 PRINT #(channel);rec$;
```

FIGURE 1. CREATING THE MAIN ARCHIVE DATABASE FILE

```
create "customer"
      title$
      name$
      firstname$
      street$
      district$
      town$
      postcode$
      productcode
      datepur$
      endcreate
```

FIGURE 2. ARCHIVE PROCEDURE FOR CONSTRUCTING SEPARATE FILE CONTAINING ALL NAMES AND ADDRESSES

```
proc mail
      input "File name ? ";filename$
      spoolon filename$
      lprint
      first
      while not eof()
      let initial=code(firstname$)
      lprint title$;" ";chr(initial);"
       ";name$;"."
      lprint street$;","
      lprint district$;","
      lprint town$;"."
      lprint postcode$
      lprint firstname$;","
      next
      endwhile
      spooloff
      endproc
```

FIGURE 3. ARCHIVE PROCEDURE FOR CONSTRUCTING FILE CONTAINING ONLY SELECTED NAMES AND ADDRESSES

```
proc choose
      input "File name ? ";filename$
      input "Select Product Code ";code
      select productcode=code
      spoolon filename$
      lprint
      all
      let initial=code(firstname$)
      lprint title$;" ";chr(initial);"
       ";name$;"."
      lprint street$;","
      lprint district$;","
      lprint town$;"."
      lprint postcode$
      lprint firstname$;","
      endall
      reset
      spooloff
      endproc
```

Colour coded

The final parts of Tracer – the printer routine – for the BBC B

by Calvin Woodings

This week we provide the source code of a printer routine for use with *Tracer*, and give some general hints as to how you might get the best out of the program. First the listing.

Tracer indexes contain colour codes as field delimiters and these codes send some printers crazy. The routine removes these codes and replaces them with spaces, but this is not all. Continuing in the spirit of thorough error trapping, the routine actually checks to see whether or not the printer is on and ready to receive data, and if it isn't it tells you, and leaves you in control.

The comments with the listing explain how it works. When you have finished typing it, save it *before* running it, in case you have inadvertently perpetrated a fatal typo.

Running it will assemble the code at *&A10*, so the next thing you do is to save the machine code onto your *Tracer* disc with **SAVE M PRINT A10 ABC*. You now have to modify the *!BOOT* program to load the machine code automatically, using the new *!BOOT* shown. **BUILD* it in the usual way as instructed in the DFS manual. Finally, modify line 90 as indicated. Now you should have a fully equipped *Tracer* disc.

If you have missed any parts, or don't want to type it all in yourself, a 40 track disc with the complete set of *Tracer* programs is available for £12 (inclusive) from the author at 12 Copsewood Ave, Nuneaton, Warwicks, CV11 4TQ.

Searching – Whilst the program itself guides you through the search procedure, there are a couple of points to note. a) You are not able to edit screens whilst in *Search* mode. If you spot an entry you want to alter, note its reference number and get back to it using the *Display/Edit* option. b) You can only print out from the *Search* mode, so if for any reason you want to list the whole index, print it out by searching for a space.

Editing – If you operate the normal cursor control keys you will find that the cursor can be moved around the display area in the directions indicated by the arrows. Now if you press any of the normal keys you will see that the character you typed replaces the one under the cursor on the screen. In the *Edit* mode some of the keys have special actions. <ESCAPE> and <COPY> do nothing. <RETURN> returns you to display mode, so make sure you finish all the editing you wish to do on a page before pressing it. (You do not have to press <RETURN> after correcting each entry.) <DELETE> deletes the character to the left of the cursor. <CTRL D> (ie, Control and D characters pressed simultaneously) causes the line on which the cursor rests to be deleted, and the space it occupied to be closed up. Never try to delete blank lines at the end of the index.

<CTRL I> – This combination of keys causes a space to be inserted above the line containing the cursor. <TAB> has the same effect if you prefer it. It/they otherwise behave like the <CTRL D> option. In order to fill the space created by this command you can simply type new text into it. Do not try to insert in blank spaces at the end of a screen.

These line-insert and line-delete keys will auto-repeat, so be careful not to hold them down for too long.

When using the <DELETE> key or entering new text, you will notice that there appear to be two barriers to progress in the shape of invisible columns down the screen in front of the field changes. You are not allowed to delete or overwrite these columns because they contain the Teletext codes which colour the fields. In order to move over them simply use the cursor keys to move the cursor to the right (if entering text) or to the left (if deleting).

If you insert a line on the last page of an index, the bottom line of the index vanishes whilst entering the new text. Don't worry, it reappears the next time you select the *Display* mode.

One final precaution when editing. Do not add records to the end of an index simply by typing them in whilst in edit mode. This may appear to work on the screen, but it will not add what you type to the index. Always return to the *Add Records* mode to add records to the end of an index.

If as a result of experimenting you have made some drastic alterations to your index don't worry. Just remember not to use the *Save Index* option, and your disc copy will remain unchanged.

Saving – Indexes are saved under the name you chose at the start, but prefixed with the "I" directory letter. If you want to change a name you should *Quit* and do so using the normal DFS **Rename* command, having first unlocked it with **Access I.<index>*. Remember that all indexes must be in the "I" directory, and should be relocked *(*Access I.<index> L)* after renaming.

Error Messages

File Not Found – The index you asked for was not on the disc in the drive. If a list of indexes is shown after this error message, you can press <RETURN> and have another go. If the message flashes you are trying to

```
10 REM PRINTER ROUTINE FOR TRACER
20 REM BY C.R.WOODINGS (C) 1985
30
40 REM ENABLES PRINTER TO AVOID PRINTING TELETEXT CHARACTERS
50
60 REM*************************************************
70
80 WRCHVEC=&20E
90 OSWRCH=&FFEE
100 print=&A10
110 FOR Z%=0 TO 3 STEP 3
120 P%=&A10
130 [OPTZ%
140 PHP:PHA:TXA:PHA:TYA:PHA \ SAVE REGISTERS
150 \
160 \CHECKS TO SEE IF PRINTER IS ON
170 \
180 LDA#2:JSR OSWRCH          \ PRINTER ON CODE
190 LDA#1:JSR OSWRCH          \ NEXT CHARACTER TO PRINTER
200 LDA#32:JSR OSWRCH         \ SPACE TO PRINTER
210 LDA#1:JSR OSWRCH
220 LDA#13:JSR OSWRCH         \ CARRIAGE RETURN TO PRINTER
230 LDA#3:JSR OSWRCH          \ PRINTER OFF
240 LDA#&80:LDY#&FF:LDX#&FC \ SET UP OSBYTE PRINT BUFFER CALL
250 JSR&FFF4:TXA
260 CMP#63:BNEend             \ IF A=63 PRINTER IS ON
```

use a completely empty disc Press <ESCAPE> to regain control, and put in a Tracer disc, see below

Index Full – All the available memory space has been used up You can edit the index providing you do not try to insert any new lines without first deleting an old one

Disc Full – There is insufficient free space on the original disc for the index you are trying to save Use any disc with space to save the index temporarily and prepare your next *Tracer* disc as follows

a) Quit TRACER and remove disc.

b) Format a new disc

c) If you only have one drive, put a write-protect tab on the original *Tracer* disc and copy the files in the "$" directory from the original *Tracer* disc onto the new disc using **COPY00$ ** Please consult the Disc Filing System manual if in doubt about the procedure for copying (If you have two drives, put the original *Tracer* disc in drive 0 and the new disc in drive 1 Use **COPY01$ ** here, and in section d below)

d) **COPY* the index you saved temporarily onto the new *Tracer* disc (**ACCESS I <index>* followed by **COPY00L <index*

If you wish, rather than start a new disc, you can create more space on the original disc either by trying the **Compact* command, or by deleting indexes which you are no longer interested in and then compacting

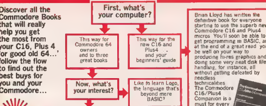
Name in Use – You have tried to create a new index with the same name as one already on the disc Use a new name or a new *Tracer* disc

```
270 LDA#12:JSR OSWRCH        \ CLEAR SCREEN FOR OUTPUT
280 LDA#2:JSR OSWRCH         \ PRINTER ON
290 \
300 \REDIRECTS OSWRCH TO START
310 \
320 .reset LDA WRCHVEC:STAnewvec
330 LDA WRCHVEC+1.STAnewvec+1
340 LDA#START MOD256.STA WRCHVEC
350 LDA#START DIV256:STA WRCHVEC+1
360 JMP tidy
370 \
380 \ERROR 45 BECOMES "PRINTER OFF"
390 \
400 .end BRK
410 EQUB 45
420 EQUS "Printer Off"
430 BRK
440 .tidy
450 PLA:TAY:PLA:TAX:PLA:PLP:RTS \ RESTORE REGISTERS AND FINISH
460 \
470 \MAIN PRINTER DRIVER FOLLOWS
480 \
490 .START PHP
500 CMP#10.BEQ pr             \ NEWLINE OK TO PRINT
510 CMP#&0D.BEQ pr            \ RETURN OK
520 CMP#3.BCC pr              \ ASCII<3 OK
530 CMP#126.BCS spc           \ ASCII>126 NOT OK, PRINT SPACE INSTEAD
540 CMP#32.BCC spc            \ ASCII<32 GETTING HIS FAR ARE NOT OK
550 .pr PLP
560 JMP(newvec)               \ PRINT CONTENTS OF ACCUMULATOR
570 .spc LDA#32
580 JMP pr                    \ PRINT SPACE
590 .finish                   \ FINISH PRINTING ROUTINE
600 PHP.PHA.TXA:PHA:TYA.PHA \ SAVE REGISTERS
610 \
620 \REDIRECTS OSWRCH BACK TO WRCHVEC
630 \
640 LDAnewvec:STA WRCHVEC
650 LDAnewvec+1.STA WRCHVEC+1
660 LDA#3.JSR OSWRCH          \ PRINTER OFF
670 LDA#12:JSR OSWRCH         \ CLEAR SCREEN
680 PLA.TAY:PLA:TAX:PLA:PLP.RTS
690 .newvec EQUW &E0A4        \ IN CASE FINISH IS CALLED FIRST!
700 ]:NEXT
```

```
>
  1 *LO.M.PRINT
  2 ?&CA0=&0
  3 *KEY0CLS:PAGE=&1100|MLO.
  "TRACER"|M:RUN|M
  4 *FX138,0,128
```

```
10 REM New line 98 for Tracer to
accomaodate Escapes froe machine
code
11 REM print routine
12
90 K%=0:IF ERR<>17 CLS:REPORT ELSE
CALL&A98:GOTO80
```

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Words per minute

Keep those fingers nimble with Typing Tutor for the 64 written by ***William Rowlands***

Micro Typer will help type in your listings faster and also teach you to touch type.

After typing in and running the program you are given an exercise to do. When you have completed the exercise, the 64 will give you the percentage correct and your speed of characters per second.

Variables

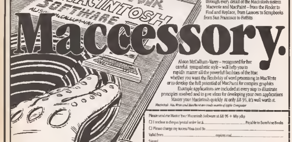
c$ – Line of spaces used to clear lines of test
ch – Number of characters in tests so far
right – Number of correct characters
sum – Number of characters entered.
ti – System variable counting time elapsed in 60ths of a second
H$ – Temporary storage for time taken

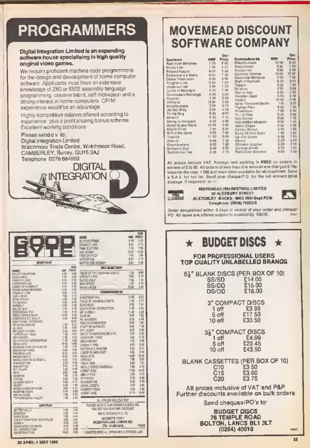
When using the Micro Typer the exercise can be selected by pressing F1-previous, F3-present, F5-next

The adventurous can add data for their own tests from Line 1840 onwards if they wish

```
1000 rem------ "Micro  Typer" --------
1010
1020 rem"by- William Rowlands- Arbroath
1030
1040 rem******************************
1050 rem ---- Prints keyboard --------
1060 Poke 53281,12 Poke 53280,6
1070 Print chr$(14)
1080 Print "  Commodore 64 ---------- Micro Typer "
1090 Print " Left  4 3 2  1    1  2 3 4 Right Fingers",
1100 Print "                                        ",
1110 Print "      ",
1120 a$=" ← 1!2!3!4 5!6 7!8!9!0 + - £"
1130 for i=1 to len(a$) step 2
1140 Print " ",mid$(a$,i,1)," ",
1150 Print mid$(a$,i+1,1),
1160 next i
1170 Print "  C  D  " Print"   ",
1180 Print "     ",
1190 l$= "                   " Print l$, Print"         ",
1200 Print "     CT",
1210 a$=" Q!W!E!R T!Y U!I!O!P @ * ↑"
1220 for i=1 to len(a$) step 2
1230 Print " ",mid$(a$,i,1)," ",
1240 Print mid$(a$,i+1,1),
1250 next i
1260 Print "  RS  " Print "     ", l$,"      "," ",
1270 Print "     R  L  ",
1280 a$=" R!S!D!F G!H J!K!L!  , ="
1290 for i=1 to len(a$) step 2
1300 Print " ",mid$(a$,i,1)," ",
1310 Print mid$(a$,i+1,1),
1320 next i
1330 Print "  RET  "
1340 la$= "                  " Print "     ",la$, Print"
1350 Print "        SH  ";
1360 a$=" Z!X!C V!B N!M!,!. /"
1370 for i=1 to len(a$) step 2
1380 Print " ",mid$(a$,i,1)," ".
1390 Print mid$(a$,i+1,1),
1400 next i
1410 Print "  CH      ",
1420 Print "           | | |   |   | | |        ",
1430 Print "           BAR--Right Thumb         "
1440 Print"      A S D F  the home keys  J K L  ",
1450 rem ------ accepts input ----------
1460 Print"                       "
1470
1480 sum=0 ch=0 right=0 restore tt$="000000" ma=12 dim ex$(ma)
1490 c$="                                       "
1500 for ex=1 to ma
1510 read a$
1520 ex$(ex)=a$
1530 next ex
1540 ex=1
1550 rem ------- main Program ----------
1560 a$=ex$(ex)
1570 Print "                 "
1580 for line=1 to 3 Print c$, next Print "    "
1590 if len(a$)>38 then Print "  string too long" stop
```

```
1600 print " ■",a$ print " ■■■", for i=1 to len(a$)
1610 get t$ if t$="" then 1610
1620 if t$="■" or t$="■" or t$="■" or t$="■" or t$=chr$(13) then goto 1620
1630 if i=1 then ti$=tt$
1640 sum=sum+1 if t$=mid$(a$,i,1) then print t$,"■■■", poke 1744+i,32
1650 if t$<>mid$(a$,i,1) then poke 1744+i,158 print"■■■", goto 1610
1660 right=right+1 next i print "■ ■" ch=ch+len(a$) tt$=ti$
1670 per$ =str$(int(right/sum*1000)/10)
1680 print "■■■■■■■■■■■■■■■■■■■■■■■■■■",","       ",per$ "%   Correct"
1690 print "■■■■■■■■■" str$(int(sum/(ti/6000))/100),"  characters per second"
1700 print "■■■   Which exercise would you like next"
1710 print "■ ■   F1-Previous  F3-Present  F5-Next   ■",
1720 get a$ if a$<>"■"and a$<>"■"and a$<>"■" then 1720
1730 if a$="■" and ex>1 then ex=ex-1
1740 if a$="■" and ex<ma then ex=ex+1
1750 print "■■■■■■■■■■■■■■■■■■■■■■■■■"
1760 print "                                                  "
1770 print "■■                                                 "
1780 print "                                                  ",
1790 if q$<> "n" then 1550
1800 poke 780,0 poke 781,21 poke 782,0 sys 65520 print c$
1810 if q$<>"n" then 1550
1820 end
1830 rem ------ data for tests ---------
1840 data "asdf  lkj asdf  lkj asdf ,lkj as asdf,"
1850 data "ask dads, lads all gas, dad has a jag,"
1860 data "flags, salads   a lad had half a glass"
1870 data "there is a good supply of water here, "
1880 data "the goods are sure to get the top rate"
1890 data "at their request that word was deleted"
1900 data "a boy on a bicycle just missed the van"
1910 data "the fan was banned, extra cabs needed."
1920 data "read the print for load, save and run,"
1930 data "return to next step then read not list"
1940 data "get data end  restore, open and close"
1950 data stop
```





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Arcade Avenue

Amstrad tips

At times it can be almost poetic the way a question and answer will appear in the same bag. Take for example, the appeals from Samantha Butcher of Denham, W McMillan of Knottingley, Sgt Tony Ashwood at an RAF posting in Gutersloh for some pokes for Amstrad games, and in particular *Manic Miner*. The answer comes from star hacker Murray Pope of West Linton – *Manic Miner* 464 Poke 28887, n-1 where n is required lives or Poke 28585, 0 to give infinite lives. These should be entered as line 100 before the Call statement in the Basic Header.

Murray also has sent in these pokes for the 464 version of *Blagger* – Poke 32518,n where n is less than 240 to give n lives. Poke 31938,0 Poke 31940,0 together make the conveyors act like dry land or Poke 32579,0, Poke 32580,0 together give infinite lives. Murray points out that to get the pokes in you will need to remove the protection of the Basic – most tape back-up utilities do this as a matter of course.

Sticking with *Manic Miner* for a second, Lee Mogford of Pilsey wants the poke for the Spectrum version of this, and for *Jack and the Beanstalk*. Even though the former is an old poke here it is again courtesy of Jeremy Mitchell of High Wycombe – Poke 35136,0

Now then let's stick with some Amstrad tips to keep the customers satisfied and here is a marvellous poke from Geoff Goff of Hornchurch for Alligata's excellent and zappy *Defend or Die* – replace header with this routine

```
10 Memory &3FFF: Load ""
20 Poke &64E4,99: Rem lives
30 Poke &64E9, &99: Rem smart bombs
40 For x=&7F83 to &7F8B: Print CHR$ (peek(x)); next
for x=1 to 5000: next
50 Call &4025
```

Line 40 prints a short and unsavoury message from the authors and can be omitted.

Steven Miller of Haleworth reveals that if you type CTRL, shift and G together on *Roland in the Caves* you can exit a level at any time. Unfortunately, after doing this four or five times a bug halts the program in line 780. Steven also says that Poke 27434,n where n is number of lives below 85 works on 'software Supersavers', but I don't know what game he's talking about. If you do, use the poke.

Andrew Thompson of Sebington has finished Amsoft's version of *Pyjamarama* with 4581 paces and 95% and wants to know whether *Life of Wally* (now called *Everyone's a Wally*) will appear on the 464, or will any of the ultimate games? Well, Andrew, the former should be appearing on the machine very soon. As for Ultimate I don't know how many of their existing titles we can look forward to, but they have pretty much promised that some exciting new releases may be underway for the Amstrad.

Finally on the subject, Oliver Dennis of London has finished *Pyjamarama* with 88% and 5514 paces and wants to warn everyone not to buy *Centre Court* by Amsoft. Oliver also has a couple of tips for *Technician Ted* – make a map and use the lift! This brings up the point that I've had loads of people writing in who haven't a clue in which order to tackle the tasks. Some of you haven't realised that the first task is of course 'Ted's Desk' even though there is a pretty hefty clue given on the cassette inlay. I will also reveal that task two is the 'Silicon Slice Store' – a room that is impossible to attempt until task one is completed.

Even though it is one of our competition games, it is so fiendish that I'm confident that even if I revealed the order of all the tasks it would still be months before anyone finished it (my pet hate of the moment is that blasted cloakroom, which Hewson have made sure you have to pass through at every opportunity, – equalled only by the evil parrot in Level 9's *Return To Eden*)

The other thing about TT is that because the order of the tasks is pre-defined we could still get a comparison between scores as long as you send in your times as well as the number of tasks completed. However, I won't be able to give away any more until I get the nod from Hewson. Watch this space.

The other week we printed a bit about Ultimate's Commodore game *Staff of Karnath*. Julian Lisk of Islington has echoed the plea for the answer to the library problem, and some help with how to use the secret compartments. In return he has revealed how to get past the green monster in the south Tower Room (at last! – that explains why the monster doesn't appear in my list of 'hates' as well) "*Go* to the Upper Guard Room and use the spell Throbin on the shield – the cross will change colour. Then use Umphalus on the shield and the cross will drop to the floor. If you pick it up the green monster won't come near you." Many thanks for that, Julian.

Here's a wacky thing! Steven Jones of Yately in Surrey has found that if you play Firebird's *Booty* with a Currah microspeech attached you are faced with an entirely different game. As he describes it "a man swims underwater and the idea is to catch 20 small fish. Boats pass overhead, and it looks a bit like Durrel's *Scuba Dive*" I must confess I've had this letter knocking around for a while, but to be honest I simply did not believe it and since our Microspeech has long given up the ghost it took a long while to check out.

Finally following on from the column of a couple of weeks ago, here is the poke for infinite lives on *Finders Keepers* thanks to Peter Millar of Cranfield – Poke 30394,255. Peter wants to echo the apparently unanimous praise that Mastertronic are receiving for this game and points out that "even with infinite lives I've only managed to cover 85% of the rooms". Pete also offers this poke for *Pyramania* on vol 12 of the tape mag 16/48 – Poke 30357,0

Incidentally, I've also had some reams of tips for that other excellent cheapie *GoGo the Ghost*, but I've run out of room for this week so keep your eyes peeled. I will also be dealing with the Ultimate fast loaders, which as Peter Millar points out are "presenting 50% of the enjoyment of the games for inexperienced but enthusiastic hackers"

Tony Kendle

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Between now and September Tony Kendle will be keeping you up to date in the *Arcade Avenue* year with just who has the score to beat. Then in September the top three scorers on each machine will battle it out for a place in the final and the chance to be the first to play our 'top secret' games.

	Commodore	BBC	Spectrum	Amstrad
Game 1	Suicide Express	Elite	Technician Ted	Sorcery
Game 2	Beach Head	Jet Pac	3D Star Strike	Splat!
Game 3	Shoot the Rapids	Chuckie Egg	Cyclone	Manic Miner

Game Wizard Entry Form

Micro . . .

Game 1 score

Game 2 score

Game 3 score

Name

Address

Your signature

Witness's signature



A classic game

This week let me mention a new program that is destined to become a classic for the Spectrum. The author of *Runestone* is Alan Davis, who will be well-known to regulars at The Corner for his comments on adventures. Temptation Software released Alan's first attempt, *The Journey*, some few weeks ago, and while it is a super program, it hasn't met with much success. Of course, adventures are becoming more and more popular now; this means that many fall by the wayside and just don't get the attention they deserve. But I would strongly recommend you to seek out *The Journey* – it's a little beauty!

Alan's latest effort is something even better. I'm afraid that parallels will inevitably be drawn between *Runestone* and the unfinished *Midnight Trilogy*, as Alan has opted for a similar technique – that of 'landscaping'. As you move around the adventure area, commanding one of several characters, the scene changes, just as in Mike Singleton's *Midnight*. The pictures are as pretty as those in Singleton's opus and evoke a similar sense of atmosphere and 'being there'.

Runestone is no mere copy, though, as Alan Davis has taken Singleton's original premise and made it into something much closer to the adventurer's heart than *Midnight*. That series has more to offer the wargamer, I feel, and will I'm sure, be used in a more complex way in the future. *The Runestone*, however, unlike *Midnight's* menu-driven command structure, accepts full-sentence text commands. Not only this, but the various edifices around the landscape may be entered and searched, and you will find other characters in these buildings who may be interrogated.

Just time now to mention 5D Software. None of the first release of tapes from this County Durham-based co-operative will be smash hits, but they are, nevertheless, excellent value-for-money. The collection that concerns us adventurers is *Cavern Chaos* and *Ptarmigan*, together on one tape with a bonus arcade game, *Fruity*.

Cavern Chaos is a large adventure concerning the hero's exploits beneath Milton Keynes, where a complex of caves has been discovered. The playing area is very map-able, with puzzles to be solved. The weirdly-named *Ptarmigan* is for the 16K Spectrum, and is "more suitable for newcomers to computing". Both these adventures are well programmed and well designed. At just £3.95 for the three programs, I recommend the tape to anyone looking for a not-too-taxing diversion.

5D Software is acting as a co-operative for program authors, and has secured 'highly cost-effective arrangements' with artists, printers and a tape duplicating factory, thus enabling impoverished programmers to get their work into print. A good idea, it seems. 5D Software, 12 Fleming Field, Shotton Cotbery, County Durham DH6 2JF.

Now, at long last, to the Help! As much as I've been rather unkind to *Eureka!* over the last few months since its release, there's no denying that the program has been bought by many thousands, and a large number of those seem to have written to me asking for help. Actually, Domark, the producers, have a pretty comprehensive Help Sheet of their own, it would appear, by Scott Gardner of Lancashire, although I can't say whether he is credited or not with its authorship. It's an excellent piece of work, and Scott is to be congratulated for his detective work. I'm sure that Scott would be pleased to answer your questions if you write to him at 135 Manor Street, Accrington, Lancashire BB5 6DZ.

The first problem that many of us come up against is the so-called arcade game at the beginning of each adventure. There are a few enterprising souls who are now marketing programs to bypass them, including, for example, Mike Lever's tape, which is available at £3.99, from him at 45 Lillesfield Avenue, Barnwood, Gloucester GL3 3AQ.

All of these will get you straight into an adventure, and this one will give you 100% vigour. Scott Gardner has given me a little routine which will also bypass the arcade sections:

CLEAR 23999:LOAD "" CODE:POKE 58117,0:RANDOMIZE USR 58112 (This is for the Spectrum version – Commodore users are out of luck, I'm afraid)

Now to the adventures themselves. *Number 2*: How do I rescue the Man? 4,21 How do I greet Hero? 19,6 (when in Rome ...!) Where is the Eagle? 3,17,12,26 *Number 3*. How do I sail the boat? 22,10 What do I do in the Chapel? 20,9 What do I do with the Grease? 18,2 *Number 4*. What do I do in the darkroom? 24,16,14,5,23,8,1,8 How do I pass the guards on the railway? 24,11,13,11 *Number 5*: What do I do with the bottle? 25,6,15

Now for some general hints (not in code, so close your eyes if you don't want to know just yet) – first, from Mad Al the wizard, from Maidenhead.

Prehistoric. Get that Von Bergie with your copper, give the dinosaur an explosive sensation, go underground for the temporal talisman!

Roman. Use your potion wisely, a quick dip will get you in. Nero has a burning desire to see Rome through his *window!*

Arthurian. Ambush a waiting beast, Arthur wants to go boating!

Colditz. Mined (!) your beyonet, catch with your hat, insects – yeuck!

Carribean: attack friendly guards, burn the door, then put out the fire, smash your receiver and magnetise the key, inflate the ore crusher and jump off (the rod kills!), examine drawer – flick it!

And finally, help of a particular sort from Toby Ridge (sounds familiar!).

Roman: to get the Dragon's tooth – Get Hammer and Chisel, Get Axe from Farmer's House, Get Stone from Stream (see earlier clue), Go East from Mine to Trees, Chop Trees, Go East to Mine, Dig (with Spade), Use Chisel – EUREKA!

Now to some Help I was asking for in *Zkul* for the QL. Michael Morgan has very quickly replied: To get the dwarves to feed you, just *Look* when a dwarf has disappeared, and you will see some food. Of course, it may be poisoned ... And to get back up the rope, all you have to do is lift up the drum of paraffin, then take to the rope and type *Up*. Thanks for the help, Michael – as to your question about machine-code on the QL, why not try the book by Andy Pennell, *Assembly Language Programming on the QL*. It's available from Sunshine Books, 12-13 Little Newport Street London WC2.

1 Make 2 Sword 3 In 4 Save 5 Film 6 Then 7 Caesar 8 I.D. 9 Sins 10 Boat 11 Dynamite 12 By 13 Place 14 Develop 15 Carry 16 Photo 17 Chest 18 Grease 19 Ave 20 Tell 21 Man 22 Push 23 Stamp 24 Take 25 Open 26 Stream

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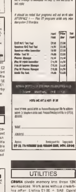
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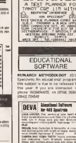
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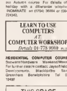
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48k Interface 1 2 microdrives 18 cartridges Interface II with Q-Shot I & II plus Alphacom 32 printer fuller keyboard + lots of s/w cost £500 accept £275ono will split Tel 0580 23733

48K Spectrum Interface I microdrive + 40 cartridges s/w leads + manuals £250 48K Spectrum low profile keyboard £175 will separate Tel 01 572 2517

48K Spectrum £70 Interface II £15 S/w Gift From the Gods Raid Over Moscow American Football World Cup Match Point Ring Medway 32890 after 4pm

Spectrum 48K programmable joystick interface + Q-Shot joystick £600 of originals s/w incl Miner Pacman Technician Ted Brain Blood Axe £150 quick sale Paul 01 860 7430

SPECTRUM 48k DK Tronics Keyboard programmable joystick s/w worth over £200 Titles include Match Day Sabre Wulf etc Will sell for £140 ono Tel 0420 84774 (after 6pm)

SPECTRUM s/w 24 titles inc Manic Miner JSW Lost £144 Sell £70 ono Tel 0773 49217 (after 4pm) + issues of Crash to be I

48k SPECTRUM low profile keyboard Interface Micro drive, 7 inch b/w monitor BTX 5000 Modem Kempston joystick + Centronics Interface S/W Mags Books £140 ono Tel South Ockendon (0708) 857010

48k SPECTRUM with manual + s/w £60 also Casio PT50 electronic keyboard worth £100 sell £65 Tel 0842 816423 Howard

SPECTRUM ORIGINAL s w between £3-£8 Top Titles Tel 01 550 8332 after 7 pm

SPECTRUM 48k good condition 15 original games 48 C15 tapes, Sanyo taperecorder plugs leads manual good starter pack £160 or will swap for CBM 64 recorder Tel Basingstoke (0256) 47 7327

SPECTRUM SOFTWARE Steve Davis Snooker Pummel Ghostbusters Alien 8, Stagecoach Sherlock Zombie Zombie Braxx Bluff Beach Head Airwolf all quite cheap Tel 0532 628206 evenings ask for Paul

SPECTRUM OWNERS! Newsletter Club gives detailed reviews of Spectrum Software Competition plus Contact Sheet Annual Membership £5 (UK) £8 Europe Contact A J Carter 10 Burn Lane Newton Aycliffe Co Durham

SPECTRUM SOFTWARE Deathstar Bugaboo Skull Lunar Jetman Hunchback royal Birkdale Johnny Reb Chess Ship of Doom Horace and the Spiders Worth over £50 will sell for £22 or £2 50 each Jonathan Sayers 8 Upper East Street Sudbury Suffolk Tel Sudbury 75284

SPECTRUM 48k cassette recorder Currah Microspeech Quickshot II Joystick Switchable Joystick Interface £50 worth of software, 5 months old Excellent condition £100 Tel Cardiff (0222) 616351 Buyer collects

SPECTRUM 48k Vu-File program on cassette £1.50 one Mr Bradley 8 Springfield Road Caversfield Bicester Oxford OX6 9TT

SPECTRUM 48k boxed and in excellent condition Also software and books Cost over £230 Will accept £110 Buyer collects or pays postage Tel Market Deeping 345361 after 4 pm

SPECTRUM 48k system Keyboard Speech Sound, Fjoystick Interface 1 and Microdrive 15 cartridges and over 60 cassettes serious and games Worth £600 sell for £270 Tel Mkelbsorough 460286 after 6 pm

ZX SPECTRUM 48k 6 months old £65 Tape Recorder (6 months) £16 Tel (0862) 801549

SPECTRUM Software all £3 each Tober Psssl Escape Orbiter Sentinel Avenger Kong Zoom Zoom Hunchy Mined Out, Zaxxon Robida 45 more Tel Newcastle 761336 call Phil after 4 30 pm

SPECTRUM 48k in VGC £70 One £110 of s/w Inc. 16 top games £50 Kempston Interface + Quickshot II Joystick Case 25 at £125 Tel 01-361 0886

SPECTRUM F48k + over £300 worth of original s/w Currah Speech Printer + Paper Kempston Interface Quickshot II Tape Recorder All boxed in very good condition £250 Tel 01-624 6214

SPECTRUM + 48k VGC £330 of s/w Original Interface I Microdrive Joystick Quick Sale £170 No Hagglers Tel 01-859 5448

SPECTRUM 16k plus £35 of software worth £105 for £56 or near offer Please ring James on 01 203 1577

NEW SPECTRUM + for sale £115 of swap part as for Commodore 64 or Amstrad CPC 64 Tel Heckmondwike 407485

SPECTRUM 48k with over £110 worth of software All originals Will separate everything for £130 ono Tel Isle of Wight 296472.

BARGAIN 48k Spectrum + £200 of software Joystick Interface All in excellent as new condition Only £100 the lot Tel Horley 771875 after 6pm Weekdays anytime Weekends

BARGAIN SPECTRUM 48k Interface I Microdrive ZX Printer Quickshot II with more than 100 top software games utilities plus extras First £200 takes it all away! Tel 01 745 4150

SPECTRUM KEMPSTON joystick interface and Joystick £20 ono DK Tronics programmable Joystick Interface Brand New £8 Sabrewulf £5 Decathlon £4 Manic Miner £3 Chequered Flag £3 Zzoom £2 Ant Attack £2.50 Trans Am £2 50 David McNiven 53 Lacdord Close Brundall Norwich Norfolk NR1 3SNL Tel (0603) 715888 after 5pm

SPECTRUM GAMES unused For e.g. Doomdark's Revenge £6.95 Scrabble £6.95 VU File £5 and almost any one you want unused and cheap 2+ printer paper Tel Redfern 2873 after 3pm

SPECTRUM SOFTWARE 15 titles including Knight Lore Alien 8 Gunstar Fall Guy Bruce Blocksdale etc £35 the lot Tel 061 652 3778 after 5pm

Tandys for Sale

AQUARIUS COMPUTER + 16k expansion Also 3 marvels £40 Tel 01 304 4018

APPLE II plus complete 2 disc drives monitor cables lots of s/w marvels games joystick + paddles various accessories offers. Tel 01 991 2525 Dave (eves)

AQUARIUS COMPUTER inc data recorder – s/w marks worth £120 Sell £80 Tel Ratten 25626

TRS 80 software Various cassettes offers? Tel 08544733

TANDY TRS-80 Colour computer and Bush computer data recorder boxed as new with leads manuals etc Bargain Price? only £75! Tel (0244) 675717

TEXAS TI99/4A Joysticks connect four cartridge basic tutor immaculate condition £60 o.n.o write to Clive Newton 90 Pentre Close Cwmbran Gwent NP44 7LR Tel 06333 80547

TANDY CGP 115 colour printer plotter 6 months old spare pens paper Boxed as new £80 Tel (0475) 88188 after 5 30pm

APPLE II – 48k two disc drives 80col card printer drier mono monitor all manuals some books and discs £750 Tel Steve Portsmouth (0706) 592500 during office hours

TANDY CGP-115 complete with spare pens and paper (worth £10) and Dragon Interface takes cinkronics or serial RHS Mote computers sell for £100 or Interface £20 Tel Great Sampford 225

TANDY TRS-80 model I keyboard 48k expansion interface Green Screen monitor 2 × 40 track floppy drives. Live printer 7 s/w £400 Tel 01 285 1299 ex159

TANDY COLOUR GAMES £4.50 each Various Cuthbert Worm Tube Scrabble – others Tel 01-809 6539

APPLE II 48k Quickshot disc drive + controller excellent condition 14" Colour Monitor S/W £500 ono Tel 0632 228720

TANDY TRS-80 Chess cartridge for our computer Plays a good game! Will post if required or can be seen in evening [illegible]

Wanted

SPECTRUM CENTRONICS interface wanted Hire for a day or two Must be able to list. Tel 01 875 2834 (will collect South London Area)

WANTED Printer (Shinwa or Similar) Wanted Micro-drive Wanted Books Zak's dissembler Up to 2/3 new price according to condition Frank Roberts 4 Signals Group BFPO 32 Tel (01)049 5141 38577

WANTED Music Maker by Super Soft. Tel 061 776 0406

SWAP ROTEL RVC 230 40 channel CB Rig PSU Powerful Home Base Antenna Echo Power Mike SWE Meter for 48k Spectrum Can deliver/collect Tel 01 408 7558

COMMODORE 64 O level cassettes for sale (offers)? or swap for absolutely any games I haven't got Biology and Mathematics II Swap Psychedelia for Kith Dave 45 Stonerwood Avenue Hall Green Birmingham B28 0AX. Tel 021 777 5023

SWAP MULTI MODE CB Radio S-Lo Le Mid H for 48k Spectrum plus software or best offer send details rig has all SSB Swap TV Radio Case for Spectrum 48K TV 6 months old Sony FX412UK Send for details M Jordan 16 Soutergate Barton South Humberside DN18 5HG

SWAP IMPERIAL TYPEWRITER Duplicator £100 Worth Stationary to Duplicator Sharp PC1211 still boxed the st for Vic20 Printer Such as 1526 SAE Elvin 214 Hernington Rd Firth Park Sheffield S5 6SG

WANTED Sinclair QL have CBM 64 disc drive MPS 801 printer speech synthesiser joystick books games etc to deal with Tel Chorley 69007

SWAP 00 GUAGE Model Railway Engines Coaches Wagons Display Cabinets Books Equipment Etc for Amstrad CPC 464 and Colour monitor Tel Bill on 01 524 4731 for appointment to view

FRENCH ELECTRON OWNER wanted and English pen friend who has an Electron or a BBC Tel 20 68 18 06 France Davergne Oliver

SPACE SHUTTLE by Activision Wanted Send asking price to Andrew 1 Heol Y Greig Cymmer Neath SA13 3TF Other good simulations also considered all wanted for Spectrum not CBM 64

ZX81s for Sale

ZX81 16K ram pack £10 Gordo Tel 0222 751550

ZX81 16K ram pack graphics rom and vdg Some Software £45 the lot Tel Lowestoft 731932

ZX81 16k keyboard – RS232 + Spooner + Sound + INV Video £80 worth of books + software the lot £110 Tel Mark Gregory 021 526 2417

SINCLAIR ZX81 1k with manual adaptor and all leads excellent condition £10 Tel Rhyl (0745) 53118

ZX81 Software for sale 12 titles inc Flight Simulation Space Raiders Catacombs Delenda, Vu-Calc £12 for all 12 Tel 0256 29606 (David)

ZX81 16K in professional keyboard books games power pack + leads inc

THE FUZION OF MIND AND MACHINE CONFUZION

ADVENTURE HELPLINE

Sherlock on Spectrum. I can't enter either Trickas or Basil's London houses How do I stop Plealkes being killed after he has confessed his opium addiction? Gareth Miles 73 Cotefield Drive Leighton Buzzard, Beds (0525-373880)

Spiderman on Spectrum. How do I get past the fan and get my web fluid. Antony Simpson 20 Cornwall Drive, Hindley nr Wigan.

Return to Eden on Amstrad How do I stop the parrot stealing objects? David Robinson 17 Tatham Way Oakwood, Leeds LS8 2FR

Sherlock Holmes on Spectrum I lose Basil Phipps and the German agent in Victoria Station Where do they go? James McKay 16 Murray Place Perth, Scotland

Sherlock Holmes on Spectrum Once I get to the front door of Sherlock's house and hail a cab I can't go anywhere Scott Wilkinson Orchard House London Road Billericay, Essex

Witch's Cauldron on Spectrum. How do you change from a cat? What do you do with the cauldron? Ian Burgess 80 Alpraham Crescent Upton, Chester

Fantasia Diamond on Amstrad. What is the point of going down the manhole? How do you cross the river? What can the gnome and the wise old man do for you? Terese Hewitt, Drakes Farm Noverton Lane, Prestbury Cheltenham Glos.

System 15000 on Commodore 64. How do I get past the apie ID in Selora Securities? It tells me This system for 1300 users only Peter Dant 11 Silverdale Street West Seaham Co Durham

Eric the Viking on Spectrum. How do I scare the eagle? How do I enter the church? What are bear sinews? John Miller Briar Cottage Top o the Hill Thurstonland, Hudds.

Lords of Time on Commodore 64. I cannot find the sword to kill the black knight. James Stevenson 102 Beckwood, Catterick Garrison

COMPUTER SWAP

Computer Swap entries are limited to 30 words. Either fill in the accompanying form and send to Computer Swap *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD or telephone 01-437 4343

All software offered through computer swap must be in original condition and for private sale only

It cannot be swapped

Warning: It is illegal to advertise pirated software

COMPUTER SWAP

Please write your copy in capital letters on the lines below

Name ....

Address ....

....

Telephone ....

Vic 20

1 ( ) Mastertronic Triple Pack (Mastertronic)
2 (4) Doodlebug (Mastertronic)
3 (1) Wizard and Princess (Mel House)
4 (3) Perils of Willy (Software Projects)
5 (7) Flight 015 (Craig Comm)
6 (6) Psycho Shopper (Mastertronic)
7 ( ) Space Scramble (Mastertronic)
8 (—) Kik Start (Mastertronic)
9 (10) Duck Shoot (Mastertronic)
10 (—) Sub Commander (Thorn/Emi)

(Compiled by Websters Software)

Commodore 64

1 (3) Airwolf (Elite)
2 (—) Mastertronic Triple Pack (Mastertronic)
3 (3) Chiller (Mastertronic)
4 (2) BMX Racers (Mastertronic)
5 (4) Booty (Firebird)
6 (—) Baseball (Imagine)
7 (—) Tir Na Nog (Gargoyle)
8 (—) Ghostbusters (Activision)
9 (—) 1985 (Mastertronic)
10 ( ) Big Mac, Mad Mac (Mastertronic)

(Compiled by Websters Software)

Spectrum

1 (3) Booty (Firebird)
2 ( ) Mastertronic Triple Pack (Mastertronic)
3 (—) Baseball (Imagine)
4 (—) Airwolf (Elite)
5 (7) Everyone's a Wally (Microgen)
6 (10) Finders Keepers (Mastertronic)
7 (3) Bruce Lee / Beach Head (US Gold)
8 (—) Dragon Tord (Hewson)
9 (—) Chiller (Mastertronic)
10 (8) Steel Dawn (Microsphere)

(Compiled by Websters Software)

BBC B

1 (—) Snooker (Visions)
2 (—) Castle Quest (Micropower)
3 (—) Bird Drops (Firebird)
4 (—) Bird Strike (Firebird)
5 (7) Scrabble (Leisure Genius)
6 (4) Mr EE (Micropower)
7 (—) Star Maze (Mastertronic)
8 (—) Spectipede (Mastertronic)
9 (1) Football Manager (Addictive)
10 ( ) 767 Simulator (Dortsoft)

(Compiled by Websters Software)

Atari

1 (1) Smash Hits Vol 1 (English Sol)
2 (8) Attack of Mutant Camels (Llamasoft)
3 (3) F15 Strike Eagle (Centresoft)
4 (7) Colossus Chess (English)
5 (5) Sub Commander (Thorn EMI)
6 (4) Computer War (Atari)
7 (9) Encounter (N Tech)
8 ( ) O'Reilly's Mine (Datamost)
9 (—) Emey Kepler (English)
10 (—) Miss Pesman (Atari)

(Compiled by Websters Software)

C16

1 (5) Wizard & the Princess (Mel House)
2 (4) Vegas Jackpot (Melbourne House)
3 (1) Roller Kong (Melbourne House)
4 ( ) Xargon Wars (Gremlin)
5 (7) Games Tape 1 (Melbourne House)
6 (3) Games Tape 2 (Melbourne House)
7 (5) Series (CBS)
8 (2) Flight 015 (Craig Communications)
9 (10) Williamsburg Adv (Microdeal)
10 (6) Stellar Wars/Blitz (CBM)

(Compiled by Websters Software)

Amstrad

1 (3) Ghostbusters (Activision)
2 (5) Jet Set Willy (Software Projects)
3 (—) Millionaire (Incentive)
4 (2) World Cup (Artic)
5 (4) Fighter Pilot (Digital Integration)
6 (7) Flight Path 737 (Anirog)
7 (8) Jewels of Babylon (Inter Mirror)
8 (6) Brooklyn (Severn Devices) (CDS)
9 (—) Darkness (Design)
10 (—) Football Manager (Addictive)

(Compiled by Websters Software)

Event	Dates	Venue	Admission	Organisers
Apple II	May 9-10 10.00am-6.00pm May 11 10.00am 4.00pm	Novotel London W6	Free in advance from organisers	Database Publications 061-456 8383
Electron & BBC Micro User Show	May 9-11 10.00am-6.00pm May 12 10.00am-4.00pm	New Horticultural Halls London SW1	£3.00 adults £2.00 children	Database Publications 061-456 8383
5th Commodore Computer Show	June 7-8 10.00am 6.00pm June 9 10.00am 5.00pm	Novotel London W6	£2.00 adults £1.50 children	D + CS Marketing Ltd 01-650 0166

Readers' Chart No 21

1	(3)	Alien 8 *(Spectrum)*	**Ultimate**
2	(2)	Knight Lore *(Spectrum)*	**Ultimate**
3	(1)	Soft Aid *(Spectrum/C64)*	**Various Artists**
4	(5)	Everyone's a Walley *(Spectrum/C64)*	**Mikro-Gen**
5	(–)	Bruce Lee *(Spectrum/C64)*	**US Gold/Datasoft**
6	(–)	Ghostbusters *(Spectrum/C64)*	**Activision**
7=	(4)	Sorcery *(C64/Amstrad)*	**Virgin**
=	(–)	Technician Ted *(Spectrum)*	**Hewson**
9	(8)	Impossible Mission *(C64)*	**CBS/Epyx**
10	(–)	Tir Na Nog *(Spectrum/C64)*	**Gargoyle**

Winning phrase No 21: "Lost shirt on sure thing" from Paul Murton, Town End Farm, Sunderland who receives £25. Others who came close were "Elton's bath sinks hotel" from Lee Russell of London, "The grass is green, the Sulk too" from Mark Sarul of Leicester, "Green things like Leon Brittan" from Neil Bond of Cardiff, "Sh' 5 ghouls listening to tree bark" from Bob Turner of Manchester and "one aher the 8, hik" from David Blackedge of Bolton

Now voting on week 23 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

Voting for Week 23 closes at 2pm on Wednesday May 1 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .... My top 3: Voting Week 23

Address .... 1.....................................

.... 2.....................................

.... 3.....................................

My phrase is: ....

New Releases

GOTHIC SCRIPT

Tower of Despair was one of the best Quilled adventures of last year Its sequel is now available, although *Key of Hope* can be played as an independent (and vast) graphic adventure in its own right.

Key of Hope continues the tale of the way between The White Goddess of Truth (she's not a baddie) and Malnor the Demon Lord (he definitely is) You have been summoned through time to help Mrs White and have to adopt an unfamiliar body and travel through an unfamiliar world seeking the parts of the Key of Hope – fail and terrible awfulness falls upon the world, just like continuous Sundays in Rhyl

The adventure is Quilled again and features graphics which, though simple, are quite effective – they add to the atmosphere as do a series of redefined text characters where first letters are illuminated and the rest of the script looks gothic, as does your input. These elements, though not fundamental, contribute much to the feel of the game

Being Quilled, the text analysis is only so-so but so far I've found the game compelling. Ie, I can just about solve some of the problems, but others have me baffled. Maybe others will find it too easy but it's vast enough to keep anybody occupied for months

Program *Key of Hope*
Price *£7 95*
Micro *Spectrum*
Supplier *Games Workshop*
27/29 Sunbeam
Road
London NW10 6JP

Key of Hope

HELPFUL

Zapp is a fairly complete machine code utility for the Amstrad 464 from Hewson Consultants As such it doesn't supriseingly enough have that much to compete with Nevertheless it's excellant, combining disassember, high speed one pass assembler, single and multi step monitor, hex memory editor, file manager and text editor – more or less everything you could want.

You can enter the code like lines of Basic with full error checking for syntax and editor, then step through the completed listing command by command to see how it works *Zapp* doesn't teach you Z80 machine code – it refers you to Rodney Zack's book for that

The manual is clear and helpful, covering the main functions of the program and including a useful quick summary It's not cheap, but the price is justified.

Program *Zapp*
Price *£14 95*
Micro *Amstrad*
Supplier *Hewson*
56B Milton Trading
Estate
Abingdon
Oxfordshire

AUTOMATIC

For those people who write their own programs and envy the superloaders used by commercial companies, *Hyperload* may be very welcome indeed. This utility for the Commodore 64 loads disc-based programs around five times faster than normal

The utility is simple to use, since it intercepts any Load instruction automatically. You even get a general purpose general disc management utility thrown in.

Program *Hyperload*
Price *£6 95*
Micro *Commodore 64*
Supplier *13 Leicester Rd*
Maidstone
Kent ME15 7QA

CRICKET-LIKE

Falcon Patrol on the Commodore was probably the first really good game Virgin Games issued It was followed by the equally excellent, if largely similar, *Falcon Patrol II* – now that later program has been converted for the Spectrum.

The things that made the original game great were the sonic sound effects and the realistic explosions when the baddies got blasted On the Spectrum they prove a little difficult to say the least The sonic engine sounds are replaced by a noise like a cricket clicking its legs

Everything else is OK, though, the conversion is pretty similar and it still pretty addictive

Program *Falcon Patrol 2*
Price *£6 95*
Micro *Spectrum*
Supplier *Virgin Games*
2-4 Vernon Yard
Portobello Road
London W11 2DX

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Daley Thompson's Dk	Arc	Amstrad	£8.95	Ocean
Hunchback II	Arc	Amstrad	£8.95	Ocean
Kong Strikes Back	Arc	Amstrad	£8.95	Ocean
Gold Dust Island	Ed	BBC	£10.95	John Wiley
Raft Away River	Ed	BBC	£16 95	John Wiley
Sheep Dog Trial	Ed	BBC	£14 95	John Wiley
Extended Payroll	Ut	BBC	£57.38	Micro Aid
Dark Tower	Arc	C16	£8 95	Melbourne Hse
911 TS	Arc	Commodore 64	£9.95	Elite
Bounty Bob	Arc	Commodore 64	£9.95	US Gold
Cauldron	Arc	Commodore 64	£7 99	Palace
Gribbly's Day Out	Arc	Commodore 64	£7.95	Hewson
Strangeloop	Arc	Commodore 64	£8.95	Virgin
Hi Bouncer	Ed	Commodore 64	£9.95	Mirrorsoft
Star Seeker	Ed	Commodore 64	£9.95	Mirrorsoft
Hyperload	Ut	Commodore 64	£8 95	Private
Drop Zone	Arc	Commodore 64	£9.95	US Gold

New Releases

NATURALIST

Gribbly's Day Out is a rarity – a C64 program from Hewson Consultants It features a frog as hero and in this is close to being unique in the software industry Gribbly's task is to rescue a number of Griblets (which look like little pebbles) and escort them to the sanctuary of an undersea cave

This being underwater in scenario, baddies take the form of water and shore-based insects, the worst being a crab whose redesigned pixels positively ooze nastiness in a break from this strongly naturalist line there is a pulsating undersea energy field which traps many of the Griblets

This must all sound pretty unlikely as the basis of adrenalin draining entertainment, but *Gribbly's Day Out* proves to be one of the most exciting arcade games I've seen for ages. Firstly the graphics, mixing sprites and redesigned character sets, are superb and beautifully animated. Gribbly, in particular, brings the computer animation of hopping to new heights even though I just can't get the little Frogger to go where I want him to

It's addictive too, bouncing around the screen, has gleefully manic appeal as you try to land near a griblet and avoid the assorted denisons of the deep Well above the average arcade game

Program *Gribbly's Day Out*
Price *£7 55*
Micro *Commodore 64*
Supplier *Hewson Consultants*
56B Milton Trading Estate
Abingdon
Oxon

CLAMMED UP

The scrolling scenery in this, the latest US gold release, reminds me of the California coastline, with roads hugging right to the cliffs, dodging every now and then into tunnels

The behaviour of the other road users, however, is more like the rush hour in Rome

First of all, you have the clams. Suicidal molluscs, clams, whether in the shell, out of the shell, or on the hoof.

Next, you have Grog For some reason, when Grog's nose appears on screen, your character goes right up the cliff wall and you lose the game

Add to these a vicious green monster who moves like a racehorse on speed, assorted rocks and hard places, and the fact that you are riding a unicycle and you have some idea of the problems facing you in *Grog's Revenge*

Run into Grog, the bug eyed green monster, stalagtites, rocks, potholes, cliff walls or off the edge and you are dead.

The object is to run the clams over, and avoid everything else Every so often, you run across the evocatively named Fat Broad (sexists take note) who demands a toll of 100 clams before allowing you to continue.

Some way down the line, down some endless shimmering California highway, the meaning of life is kicking its heels just waiting for someone like you to find it.

The graphics are chunky and practical, control of the character is simple, and scoring points is a pain in the neck.

Only a lunatic would like this game Me, I loved every minute of the thing.

Program *BC 11 - Grog's Revenge*
Price *£9 95*
Micro *Commodore 64*
Supplier *US Gold*
Unit 10
The Parkway
Industrial Estate
Heneage Street
Birmingham
B7 4LY

CONVERSION

More conversions to the Amstrad from Ocean, including *Daley Thompson's Decathlon*, *Hunchback II* and *Kong Strikes Back*.

As is Ocean's usual form the conventions are very close to the originals in quality and looks on screen.

Hunchback II is a jumping-on-to-ropes-collecting-things kind of game, unoriginal but fairly addictive anyway

Curiously enough, by far the drabbest screen is the first one which looks very uneventful – later screens are much more complex.

Guide Quasimodo along collecting the bells, dodge the arrows and other things, try to jump on to the ropes and moving platforms abla dee abladah. . . you get the idea

The Amstrad version looks incredibly like the Commodore version – it doesn't push the machine like *Sorcery* did for example, but still – it's not bad.

Program *Hunchback II*
Price *£8 95*
Micro *Amstrad CPC 464*
Supplier *Ocean Software*
6 Central Street
Manchester
M2 5NS

BAD BLOOD

Runestone is going to cause a lot of bad blood amongst the tribes of *Doomdark* and *Midnight* There will be an initial reaction against the game be-

This Week

Ashkeron	Ad	Spectrum	£5.95	Mirrorsoft
The Tower of Despair	Ad	Spectrum	£7.95	Ocean
911 TS	Arc	Spectrum	£7.95	Elite
Cauldron	Arc	Spectrum	£7.95	Palace
Everyone's a Wally	Arc	Spectrum	£9.95	Mikro-Gen
Falcon Patrol II	Arc	Spectrum	£6.00	Virgin Games
Icicle Works	Arc	Spectrum	£6 95	State Soft
Amazing Ollie	Ed	Spectrum	£4 50	Storm
Ollie Sketchpad	Ed	Spectrum	£4 50	Storm
Zapp	Ut	Spectrum	£14.95	Hewson

Key **Ad** – adventure, **Arc** – arcade, **Ed** – education, **S** – strategy-simulation, **Ut** – Utility

Pick of the week

SNOWTIME

If you liked *Boulder Dash* (which I didn't much), you'll love *Icicle Works* (and I do) which takes the basic ideas of that game and adds some new elements to make an astoundingly addictive game. That said, I should add that this is technically a very unsophisticated game.

The scrolling is very slow and exceptionally juddery, similarly the character movement is character square rather than pixel.

But as a game, things look different. Like *Boulder Dash* the basis of the game is the movement of boulders (in this case giant snowballs) – the avoidance of avalanches and the manipulation of snowball fall.

The basic idea is to find the pieces of various toys. Sometimes they are simply amidst piles of snowballs and you have to figure out how to get them out without getting bonked. But at other times you have two penguins (which turn into bits of toy) or drop snowballs through boxes marked? In short, there are many ways of getting toys and all require not only fast responses, but a good deal of ingenuity. The whole thing is done to time limits so you have to think as well as react fast. I was hooked, pity the graphics aren't better, but buy it anyway.

Program *Icicle Works*
Price *£6.95*
Micro *Spectrum*
Supplier *State Soft*
Business & Technology Centre
Bessemer Drive
Stevenage
Herts SG1 2DY

cause, simply, it is so heavily inspired by those games that the dread words 'rip-off' will be uttered from every corner of the land. On the other hand *Runestone* may actually be a better game.

In *Runestone* you control three characters Morval, Elador and Creymarel, warrior, dwarf and wizard respectively. As you choose each character, you see the world through his eyes in the top third of the screen. As you instruct the computer to move you forward, the displayed picture moves towards you – get the picture? You also look in different directions over the land which is populated with a lot of characters called something the something, eg, Norman the naive, Brenda the bold, that kind of thing, so you can see we're well into fantasy novel stuff here.

The idea, guess what, is to find the Runestone of Zaphur and crush Kordomir the Dark One (why these baddies are always named after pipe tobaccoes I'll never know). This means undertaking quests finding friends, etc.

So far so tedious. But what *Runestone* has that *Doomdark* doesn't is a full language analyser, independent characters who carry on doing things even if you don't, and a wide variety of landscapes including the interiors of buildings. You play the game far more like a traditional text adventure, picking up useful objects and taking to other characters. The whole thing ends up being a bit of a cross between *Valhalla* and *Doomdark's Revenge*. The time I've spent with it suggests it's going to be very good indeed – well worth several looks.

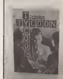
Program *Runstone*
Price *£7.95*
Micro *Spectrum*
Supplies *Games Workshop*
27 Sunbeam Road
London NW10

BIZARRE

Tycoon is a bizarre mixture of trading game and crossword where you buy letters to help you with the crossword and sell words when you can guess them. That's about it really, but it does make for a fairly entertaining game – although it would probably work just as well as a pen and paper game.

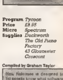
There are just two problems with it, the first is that when confronted with the basic Spectrum reviewers test of inputting Stop when asked how many players are required the program crashed with Error in Basic – this is not on, particularly at the price.

In fact, the game appears to be entirely in Basic – not that this is overtly a bad thing, but it just doesn't have the balls and whistles usually associated with Spectrum games. In summary, it's good game idea that to some extent survives some pretty basic programming.



Program *Tycoon*
Price *£8.95*
Micro *Spectrum*
Supplies *Duckworth*
The Old Piano Factory
43 Gloucester Crescent

Compiled by Graham Taylor


New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases, *Popular Computing Weekly* 12-13 Little Newport Street, London WC2H 7LD

This Week

Elite 55 Bradford Street, Walsall WS1 3QD 0922 611215 **Hewson** 7 Grahame Close, Blewbury, Oxon OX11 9QE 0235 832939 **John Wiley** Baffins Lane Chichester, Sussex PO19 1UD **Melbourne House** 39 Milton Trding Estate Abingdon, Oxon OX14 4TD 0235 835001 **Micro Aid** 25 Fore Street Praze Camborne, Cornwall TR14 0JX **Mikro-Gen** 44 The Broadway Bracknell, Herts, 0344 427317 **Mirrorsoft** Mirror Group Holborn Circus London EC1P 1DQ 01-353 0246 **Ocean** 6 Central Street Manchester M2 5NS 061 832 6633 **Palace** 275 Pentonville Road, London N1 01-278 0751 **State Soft** Business and Technology Centre Bessemer Drive Stevenage Herts 0438 316561 **Storm** Winchester House, Sherborne, Dorset, 0935 813528 **US Gold** US Gold, Unit 10 The Parkway Ind Centre Heneage Street, Birmingham B7 4LY 021 359 3020 **Virgin** 2-4 Vernons Yard Portobello Road 01-727 8070 **Virgin Games** 2-4 Vernon Yard Portobello Road London W11 2DX 01-727 8070

Eighteen months ago there was a spirit of optimism in school computing generated by Government efforts to fund the purchase of hardware and software.

We were all set for a 'curriculum' revolution, but, alas, it hasn't happened. The interest and the latent enthusiasm are still there it's just the actual computing that is missing

The sponsored purchasing programme initially featured only one micro that was directly affordable by most pupils – the *Spectrum* 48K. Unfortunately, official purchasing tended to neglect this machine. pupils bought it for home use but had to operate different 'Basics' at school.

Neither the DES, nor its agencies, nor the various county computing ventures seem to have appreciated the problem. They have imposed their machines on schools and the results have been predictable enough – many teachers are privately using *Spectrums* and *Commodores*, and also encouraging their pupils to take classroom advantage of the (often excellent) low-cost educational programs that are available.

Another side to the computing malaise in our schools, one the time-tables that govern the use of computing laboratories: where such a laboratory is provided, 40 periods will commonly exist for its actual use – 5 taken away immediately for operational reasons and let's say, a further 10 for computer studies and 'A' level work. This leaves 25 periods, 8 of which would be used up for *first* year CAP (8 forms, 2 pupils per terminal) and 6 more for *second* year CAP Thus, about 10 periods remain (in any week) for all the computer assisted learning needs of the school. It will be obvious to all that this represents inadequate provision Many earnest computer students are going to be sadly disappointed

The more successful a school is with its CAP lessons, the more acute the time-tabling problem will become, and there are certain groups of children who stand to lose a great deal. Girls may really enjoy computer appreciation When they select their options at the end of year 3, will these girls be able to opt for computer studies? The time-table might be against them and there are other forces that might also be operating the presence of a typing room, and typing teachers; and the lack of computing examinations that specifically seek to provide for the social/business aspects of the subject All too often, girls are 'advised' away from computer studies yet typing and commerce are no longer sufficient.

At my own school, we have been conducting an experiment to discover strategies that will interest girls in computing more especially, computing and 'English' The results are startling the lessons only take place in 'free' time and yet the girls opt for them The strategies are simple enough – we produce step-by-step manuals for every application. we have our own 'basic' book: We teach the mothers and the daughters we offer English programs that are directly related to social applications, and we try to instill a spirit of enthusiasm for the new technologies Pupils cover word processing but are also familiar with business spreadsheets and graphics/design packages This is the world of 'work' brought in to the world of the classroom.

Unfortunately, such an 'English' program does not lead naturally into examination work The main examination boards have dismally failed to provide any of the necessary courses Computing is still related to computer studies and, in its turn, this subject is often interpreted in a negative 'hands off' way For 'arts' pupils, the future is bleak their own computing skills and enthusiasm are being neglected by those whose job it is to design the examinations

Other countries already have a significantly higher proportion of their labour force with better qualifications than we do

We desperately need a computer strategy that is based on the real needs of our society The potential is there will it ever be allowed to flower?

Stephen Garber

Cube route

Puzzle No 155

Grubbits, as manufactured by Gibson & Genuine Grubbits Ltd, come neatly packed in one-foot cube boxes.

At a recent stocktaking in the warehouse it was found that these boxes had been neatly stacked into a complete solid rectangular arrangement, and in order to work out the number present it was simply necessary to multiply the numbers along the length, width and height of the arrangement. Curiously, there was the same difference between the length and the width, and the width and the height.

Someone was also overheard to remark that if there was just one box fewer the rest could be re-arranged to form a perfectly cubic stack.

If, in the original arrangement, no dimension consisted of a single layer, what is the fewest number of boxes that could have been present?

Solution to Puzzle No 150

Out of a total of 7776 possible scores, only 102 of them score over one thousand, making a winning expectancy of only (approximately) one chance in seventy-six, so Sammy's odds of ten to one are wildly in his favour

```
10 WIN=0:LOSE=0
20 FOR A=0 TO 5
30 FOR B=0 TO 5
40 FOR C=0 TO 5
50 FOR D=0 TO 5
60 FOR E=0 TO 5
70 P=A*B*C*D*E
80 IF P>1000 THEN WIN=WIN+1 ELSE LOSE=LOSE+1
90 NEXT E,D,C,B,A
100 PRINT "WINS:";WIN,"LOSE:";LOSE
```

The program calculates all possible combinations of throws, and counts the winnings and the losses This gives a total of 102 wins and 7674 losses out of the 7776 possible throws

Winner of Puzzle 150

The winner is Keith Ratcliffe of Anchorway Rd, Green Lane, Coventry, who receives £10

Rules

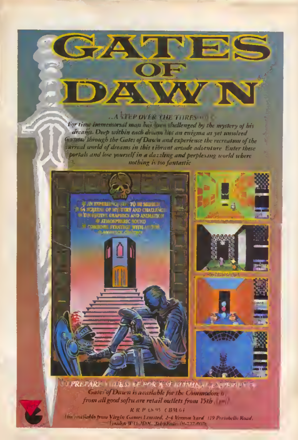
If the puzzle can be sensibly solved using a computer then the winner will have included a listing of the program used to find the correct answer The closing date for Puzzle No 155 is May 20

The Hackers








GATES OF DAWN
..A STEP OVER THE THRES
For time immemorial man has been challenged by the mystery of his dreams. Deep within each dream lies an enigma as yet unsolved
through the Gates of Dawn and experience the recreation of the surreal world of dreams in this vibrant arcade adventure. Enter these portals and lose yourself in a dazzling and perplexing world where nothing is too fantastic
* 64 SCREENS OF MYSTERY AND CHALLENGE
* ATMOSPHERIC SOUND
Gates of Dawn is available for the Commodore
from all good software retail outlets from 15th
R R P CBM 64
available from Virgin Games Limited, 2-4 Vernon Yard 119 Portobello Road,